

# FAUNA HAWAIIENSIS

OR THE

## ZOOLOGY OF THE SANDWICH (HAWAIIAN) ISLES:

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VOLUME III. PART I.

*DIPTERA* BY P. H. GRIMSHAW.

*Pages 1—77; Plates I, II, III, uncoloured.*

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## DIPTERA.

By Percy H. Grimshaw.

### Introduction.

IN the following pages 172 species of Diptera are recorded as inhabiting the Sandwich Islands. Very little was known of this section of the fauna previous to the visits of Mr Perkins—indeed I have only been able to find 22 species recorded (although I believe I have consulted all the available literature),—together with three or four referred to certain genera but not specifically identified. Of these, 10 appear to be represented in the present collection, 9 are practically cosmopolitan, while 9 were originally described from these islands. In the present contribution I have found it necessary to describe 106 species as new to science, and for the reception of 13 of these I have ventured to characterise 6 new genera.

The collection formed by Mr Perkins being a comparatively small one, and the other published records being so few, it would be unwise to discuss at any length any peculiarity in the distribution of the species that may appear to be indicated by the few specimens obtained. I may, however, point out that out of the total number of 172 species no fewer than 134 have hitherto been obtained from only a single island.

As at present known, the distribution in the various islands is as follows:

	<i>No. of species.</i>	<i>No. of peculiar species.</i>	<i>Percentage of peculiar species.</i>
Kauai	27	14	52
Oahu	40	24	60
Molokai	29	17	59
Lanai	18	8	44
Maui	22	15	68
Hawaii	88	56	64

In proportion to the number of species obtained, the Drosophilidae are unusually well represented, and include two new and remarkable generic forms. The Tipulidae (*sensu stricto*) have not yet been found on any of the islands, but their allies the

Limnobiidae are represented by at least nine species, including one belonging to the very interesting genus *Styringomyia*, originally founded upon specimens preserved in copal. It is curious, and perhaps significant, that the Orthorrhapha Brachycera, an important section of the order, are very sparsely represented (including only an unidentified species of *Sargus*, 11 Dolichopodidae, and an imported species of *Scenopinus*). The Tabanidae are dependent upon the presence of mammals, and hence their absence is easily accounted for, but it is somewhat astonishing that not a single specimen belonging to the large families Asilidae, Bombyliidae, or Empidae has yet been obtained.

Fam. MYCETOPHILIDAE.

SCIARA Meigen.

(1) *Sciara molokaiensis*, sp. nov.

♀. Long. corp.  $1\frac{1}{2}$  mm.; al.  $2\frac{1}{2}$  mm. Antennae blackish, joints of scape lighter, those of flagellum sessile, twice as long as broad. Head black, palpi yellow. Thorax black, shining, humeri yellowish, pleurae yellowish, but dark above the intermediate coxae, halteres yellowish with dark club. Abdomen reddish-brown, hind borders of the segments, especially of the apical ones, darker, venter yellow. Legs pale, all the coxae and femora yellow, the latter with a black spot at the extreme base, tibiae yellowish with the spurs conspicuous and whitish, tarsi brownish, becoming darker towards the tip. Wings greyish hyaline, costal and first and third longitudinal veins darker and stronger than the rest, first longitudinal vein ending at half the length of the wing, before the base of the fork and opposite the tip of the sixth vein; distance between the tips of the first and third veins four times that between the tip of the third vein and the termination of the costal; anterior branch of the fork ending midway between its posterior branch and the tip of the third vein; termination of the fifth vein midway between the posterior branch of the fork and the sixth vein; furcation of fifth and sixth veins near the base of the wing and considerably before the origin of the anterior cross vein.

HAB. Molokai Mts., 6500 ft., September 1893, one female.

Plate I. fig. 1, wing.

PLATYURA Meigen.

(1) *Platyura fuscocostata*, sp. nov.

♀. Long. corp. 6 mm.; al.  $6\frac{1}{2}$ —7 mm. Antennae short and broad, first, second and basal half of third joints yellow, remaining joints dark brown, third joint elongated, more than twice the length of the succeeding joints, which are sessile and a little



broader than long. Face and palpi with white tomentum, vertex and occiput shining black. Thorax dark fuscous, almost black, collar and shoulders whitish, pleurae dark and shining, whitish beneath the shoulders, scutellum and metanotum dark, halteres with pale stem and nearly black knob. Abdomen dark, segments two to five with a yellow posterior border. Coxae dark, those of fore and intermediate legs paler towards the apex, fore femora and all the tibiae testaceous, hind femora and all the tarsi dark brown. Wings longer than the body, hyaline, apices and hind margins tinged with fuscous, costal, subcostal and marginal cells dark fuscous. Costal vein extending beyond the junction with the third longitudinal vein half the distance from that point to the tip of the anterior branch of the fourth longitudinal, auxiliary vein terminating opposite the origin of the third vein, first longitudinal vein ending opposite the end of the sixth longitudinal vein, anterior branch of third vein terminating in the costa at two-thirds of the distance from the tip of the first to the tip of the posterior branch of the third vein, furcation of fifth and sixth veins opposite the origin of the third vein, seventh vein short but distinct.

HAB. Hawaii, Kilauea, August 1896, a single female.—Maui, a specimen without abdomen (? sex) from Haleakala, 5000 ft., October, 1896.

Plate I. figs. 2—3, wing, and base of ♀ antenna.

(2) *Platyura hawaiiensis*, sp. nov.

Long. corp. ♂♀ 5 millim.; al. ♂ 4, ♀ 5—6 millim.

Antennae in ♂ about twice as long, in ♀ about as long as the thorax, brownish-black, with the first two and basal half of the third joints yellow, in ♂ the joints at the base of the flagellum twice as long as broad, towards the apex more slender, and at least three times as long as broad, all covered with a short regular pubescence, in ♀ all the joints a little longer than broad and more uniform. Thorax reddish-yellow, black-haired, with two broad lateral black stripes which are abbreviated in front, leaving the humeri yellow, but confluent behind, metanotum dark, scutellum dark in two of the specimens but lighter in the third, halteres yellow. Abdomen of ♂ slender, clavate, of ♀ broader, first segment wholly yellow or reddish-yellow, second yellow with the basal half blackish, succeeding segments blackish with broad yellowish posterior bands. Legs pale, apices of tibiae and the whole of the tarsi dark. Wings hyaline, with the apices and hind margins tinged with fuscous, sixth vein slightly clouded; auxiliary vein terminating a little before the origin of the third vein, the venation otherwise very like that of the preceding species.

HAB. Hawaii, Olaa, July 1895, one male; Kilauea, one female, September 1895; Kona, one female, 4000 ft., September 1892.

Plate I. fig. 4, base of ♂ antenna.

(3) *Platyura insularis*, sp. nov.

♀. Long. corp.  $4\frac{1}{2}$  mm.; al. 4 mm.

Antennae about half the length of the thorax, first, second, and basal half of third joints yellow, remaining joints dark brown, those of the flagellum about as broad as long, pubescent, palpi yellow. Thorax dirty-yellow, clothed with black hairs which are short on the dorsum but longer behind and at the sides, scutellum brownish, halteres yellow. Abdomen black, shining, first segment dark, second to fifth segments each with a transverse posterior band of yellow. Legs pale, tarsi darker. Wings hyaline, apices tinged with fuscous and the sixth vein clouded, in one specimen also a slight clouding at the origin of the fourth vein; auxiliary vein abbreviated, not reaching the costa, anterior branch of the third vein terminating about midway between the tip of the first vein and the tip of the posterior branch of the third vein.

HAB. Molokai Mts., 3000 ft., September 1893, one female.—Hawaii, Kona, 4000 ft., July 1892, one female.

Two males, in bad condition, from Koholuamano, Kauai and Wainae Mts., Oahu, 3000 ft., respectively, may also belong to this species.

Plate I. fig. 5, base of ♀ antenna.

## Fam. CHIRONOMIDAE.

## CHIRONOMUS Meigen.

(1) *Chironomus hawaiiensis*, sp. nov.

Long. corp. ♂ 5, ♀ 5—6 mm.; al. ♂ 3, ♀ 3— $3\frac{1}{2}$  mm.

♂. Head and basal joints of antennae yellow, palpi yellowish-brown, plumes of antennae light yellowish-brown, eyes black. Thorax with the ground-colour whitish, almost silvery, in some specimens with a slight greenish tinge, two anterior approximated dorso-central and two posterior lateral abbreviated stripes reddish-brown, the three lines of ground-colour thus left furnished with rather long very pale hairs; pleurae and scutellum greenish-grey, the latter with long pale yellow hairs, metanotum reddish-brown, halteres pale. Abdomen slender, yellowish-grey, with light yellow hairs, each segment with a triangular basal dark brown spot, the apex of which points backward while the base extends completely across the segment, apical segments almost entirely dark. Legs light yellow, all the femora with a brown ring near the apex, fore legs except the femora, bare, with the tibiae a little more than half the length of the metatarsi, basal third and tip of tibiae brown, tips of all the tarsal joints likewise brown, intermediate and hind legs long-haired, tips and bases of the

tibiae and tips of the tarsal joints brown. Wings whitish hyaline, anal angle prominent, transverse vein dark, rest of venation pale.

♀. Similar to the male, terminal joints of the antennae dark and slender, legs almost bare.

HAB. Oahu, Waialua, Koolau range, three males and three females from the beach and coast, February 1893.

Plate I. figs. 6 and 7, wing and ♀ antenna.

ORTHOCLADIUS V. d. Wulp.

(1) *Orthocladus*, sp.

Two females belonging to this genus, not in sufficiently good condition for description, were obtained at Haleakala, Maui, 5000 ft., in March 1894.

TANYTARSUS V. d. Wulp.

(1) *Tanytarsus lacteiclavus*, sp. nov.

♂ ♀. Long. corp. 2 mm.; al.  $1\frac{3}{4}$  mm.

Antennae light brown. Thorax uniform blackish-brown, halteres pale, almost milky-white. Abdomen dark-brown, genitalia of ♂ conspicuous, light yellowish. Legs light brown, hairy, fore metatarsi not quite half as long again as the fore tibiae, all the tibiae darker at the tip, all the metatarsi ringed with white at the base and apex, remaining joints of the tarsi unicolorous. Wings hyaline and uniformly hairy.

HAB. Kauai, Koholuamano, six males and two females (all gummed on one card), April 1895.

CERATOPOGON Meigen.

(1) *Ceratopogon*, sp.

Three imperfect specimens of a species belonging to this genus, two of which are males, were beaten from trees, Wainae Mts., Oahu, 3000 ft., in April 1892. Drawings of the wing, the apical joints of the male antennae, and the end of the fore foot in the same sex, are given in Plate I. figs. 8—10. In the last joint of the foot there represented I would draw attention to the remarkable excavation on the upper side of the base, a feature which, so far as I am aware, has not hitherto been noticed in members of this genus.

## Fam. PSYCHODIDAE.

## PSYCHODA Latreille.

(1) *Psychoda alternata* Say.

*Psychoda alternata* Say, Long's Exped. Appendix, p. 358 (1824).

HAB. Hawaii, six specimens from Kona, 2000 ft., September 1892, are so like British examples of this species, which, according to the Rev. A. E. Eaton, is the same as *P. sexpunctata* Curtis (Ent. Mo. Mag. 1898, p. 123) that I hesitate to describe them as distinct.

(2) *Psychoda inornata*, sp. nov.

Long. corp. 1 mm.; al. 2 mm.

Wholly yellowish, covered with light yellow hairs. Antennae nearly as long as the body, joints moniliform, with long verticils of pale yellow hair. Wings hyaline, without spots, veins and margins with long pale hairs which are longest at the anal portion of the margin.

HAB. Hawaii, three specimens (sex undetermined) from Kona, 4000 ft., August 1892.

Plate I. fig. 11, wing.

## Fam. CULICIDAE.

## CULEX Linn.

(1) *Culex taeniatus* Wied.

HAB. Oahu. Half-a-dozen female specimens from Kaala Mts., 1500 ft., March 1892, agree exactly with examples so named in the British Museum from Jamaica and elsewhere. The species appears to be almost cosmopolitan, and its synonyms are too numerous to give in this place.

## Fam. LIMNOBIIDAE.

## LIMNOBIA Meigen.

(1) *Limnobia perkinsi*, sp. nov.

♂ ♀. Long. corp. 4—5 mm.; al.  $5\frac{1}{2}$ —7 mm. Antennae dark brown. Thorax yellow, with the following dark brown markings: a broad central stripe, commencing at the anterior margin and widening out behind the humeri so as to cover the whole

of the dorsum except two very short central stripes and two small lateral spots immediately in front of the suture; behind the suture four slender stripes, two central and two lateral, the former continued over the scutellum; metanotum dark; halteres with yellow base, dark stem and yellow club. Abdomen brown, banded with yellow on the fore borders of the segments, venter yellowish. Legs yellow, femora conspicuously banded with dark brown at the tip, tibiae very slightly darker at the tip. Wings hyaline, with the marginal cross-vein, origin of 2nd vein, origin of 3rd vein, anterior and posterior cross-veins, base of fork of anterior branch of 4th vein and transverse vein closing discal cell, clouded with fuscous, a slight clouding also at junction of the 1st, 4th and 5th longitudinal veins. Auxiliary vein terminating opposite the origin of the 3rd vein, anterior branch of 4th vein bifurcating considerably before the end of the discal cell, posterior transverse vein before the middle of the discal cell.

HAB. Hawaii, Kona, two males, 2000—3000 ft., Sept.—Oct. 1892.—Oahu, Honolulu, November 1896, one female.

Plate I. fig. 12, wing.

#### DICRANOMYIA Stephens.

##### (1) *Dicranomyia apicalis*, sp. nov.

Long. corp. ♂ 7, ♀ 6—7 mm.; al. ♂ 8, ♀ 7—9 mm. Ochraceous; head yellow, frons in ♀ silvery, antennae pale with 1st joint dark fuscous. Thorax with pale yellow central stripe and sides of mesonotum light brown; pronotum light yellow with brown lateral spots; metanotum, scutellum and halteres pale. Abdomen brownish, ♂ genitalia dark brown, ♀ with ovipositor reddish-yellow. Legs pale, femora with a black ring at the tip, tibiae slightly infuscated at the tip. Wings yellowish hyaline, not spotted, stigma light brown, auxiliary vein terminating opposite to or a little before, and subcostal cross-vein considerably before, the origin of the 2nd vein.

HAB. Hawaii, Oloa, one male and two females, July 1895, and December 1896.—Lanai, 2000 ft., one female, December 1893.

Plate I. fig. 13, male genitalia.

##### (2) *Dicranomyia hawaiiensis*, sp. nov.

♂ ♀. Long. corp. 6—7 mm.; al. 7 mm. Head and front cinereous, antennae dark brown with the two basal joints yellow. Thorax yellowish-cinereous, mesonotum with a double central dark brown stripe reaching from the anterior margin to the transverse suture, and two lateral patches of the same colour commencing behind the humeri and reaching to the scutellum, which is cinereous; metanotum cinereous above with the sides fuscous; halteres pale, base of club darker. Abdomen dark brown, segments narrowly

edged with yellow posteriorly. Legs very slender, with the femora dark, slightly thicker and distinctly tipped or ringed with pale yellow at the apex, tibiae and tarsi light brown. Wings hyaline, stigma brown, oval and well-marked, base of 2nd longitudinal vein and all the transverse veins slightly infuscated, termination of auxiliary vein opposite, and subcostal transverse vein opposite or nearly opposite, the origin of the 2nd longitudinal vein.

HAB. Hawaii, Hilo, 2000 ft., January 1896, two males (one in bad condition).—Kauai, one male, 4000 ft., Oct. 1895; Koholuamano, four females, April 1895.—Molokai Mts., one male and four females, 3000—4500 ft., Sept. 1893 and June 1896.—Maui, one male, Haleakala, 5000 ft., May 1896.

(3) *Dicranomyia brunnea*, sp. nov.

♂ ♀. Long. corp. 5—7 mm.; al. 7—9 mm. Head, antennae and palpi fuscous. Thorax and scutellum entirely brownish-ochraceous to dark brown; halteres fuscous. Abdomen blackish-brown, unicolorous. Legs brown, tibiae and tarsi distinctly hairy, especially the latter, claws of ♂ large, about half as long as the last tarsal joint. Wings hyaline, stigma very pale, termination of auxiliary vein and position of subcostal transverse vein as in *D. hawaiiensis*.

HAB. Hawaii, one male and one female, Hilo, 2000 ft., Jan. 1896; Kona, two males, 2000—4000 ft., June—Aug. 1892.—Kauai, three females, Koholuamano, April 1895; two males and one female, 4000 ft., Oct. 1895.—Maui, two males, Haleakala, 5000 ft., May 1896.—Molokai, Kohanui, one male, Sept. 1893; one female, woods above Pelekunu, Aug. 1893.

A male specimen from Hawaii, Olaa (July 1895) has the auxiliary vein somewhat longer, so that its tip and the subcostal cross-vein are just beyond the origin of the 2nd longitudinal vein; in other respects it agrees with the other specimens enumerated above.

(4) *Dicranomyia kauaiensis*, sp. nov.

♂ ♀. Long. corp. 3—4 mm.; al. 4—5 mm. A small, slender species. Antennae and palpi dark brown. Thorax ochraceous, unicolorous, halteres pale with dark club. Abdomen dark brown, unicolorous. Legs pale yellowish brown. Wings hyaline, stigma very pale, veins slender, details of venation as in preceding species.

HAB. Kauai, 4000 ft., October 1895, four males and two females.

(5) *Dicranomyia variabilis*, sp. nov.

♂ ♀. Long. corp. 6 mm.; al.  $7\frac{1}{2}$ —8 mm. Head, palpi and antennae entirely dark brown. Thorax obscurely ochraceous, with a broad central dark brown stripe, scutellum

and metanotum brownish ochraceous, halteres with light yellow stem and blackish club. Abdomen dark brown, hind margins of segments slightly paler, ♂ genitalia dark brown, ♀ with reddish-yellow ovipositor. Legs light brown, knees paler. Wings hyaline, stigma distinct, origins of 2nd and 3rd longitudinal veins and all the transverse veins slightly clouded, in the ♀ specimen the discal cell is open; termination of auxiliary vein in the ♂ specimen slightly before the origin of the 2nd vein, but in the ♀ a little beyond it, subcostal cross-vein in ♂ before, in ♀ opposite the origin of the 2nd vein. Hence the species appears to be remarkably variable in its venation, especially as in the ♂ specimen the auxiliary vein of the right wing terminates much nearer the origin of the 2nd vein than that of the left wing.

HAB. Haleakala, Maui, 5000 ft., May 1896, one male and one female.

(6) *Dicranomyia latifrons*, sp. nov.

♂. Long. corp. 5 mm.; al.  $6\frac{1}{2}$  mm. Occiput cinereous, eyes widely separated, front cinereous with white tomentum, antennae yellow, darker towards the tip. Thorax light cinereous with broad central stripe and two short lateral stripes dark brown, pleurae glistening yellowish-white, a spot beneath the root of the wings almost silvery, halteres pale with dark knob. Abdomen dark brown, segments edged posteriorly with light yellow, genitalia light yellow. Legs yellowish-brown, last two or three tarsal joints darker. Wings long and narrow, hyaline, stigma very pale, auxiliary vein terminating opposite the origin of the 2nd vein, subcostal cross-vein a little before this, tip of 1st longitudinal vein connected with the costa and the 2nd longitudinal vein by distinct cross-veins.

HAB. Oahu, Waialua, Koolau range, Beach, one male, February 1893.

TRIMICRA Osten-Sacken.

(1) *Trimicra lateralis*, sp. nov.

♂. Long. corp. 6 mm.; al. 8 mm. Head ochraceous; vertex and occiput with dark central stripe and conspicuous long hairs, antennae blackish, with first two joints yellow, palpi dark. Thorax brownish-yellow above, long-haired, with three rather indistinct dark brown narrow stripes, the central one somewhat shining, pleurae pale ochraceous, scutellum and metanotum dark brown, covered with cinereous tomentum, halteres pale. Abdomen dark brown with the lateral margins (but *not* the posterior margins) pale yellowish, genitalia conspicuous, reddish-yellow. Legs testaceous, densely clothed with long, fine erect hairs, femora with a broad brownish ring before the tip, apices of metatarsi and succeeding joints blackish. Wings slightly brownish tinged, 2nd longitudinal vein slightly infuscated.

♀ (? same species). Long. corp. 4 mm.; al. 6 mm. Similar to ♂, but smaller, abdomen without the pale lateral margins, legs less conspicuously hairy, hairs decumbent, wings clearer.

This species appears to be closely allied to *T. anomala* O.-Sack., but may be distinguished therefrom by the absence of the pale hind margins of the abdominal segments.

HAB. Hawaii, one male, Oloa, December 1896; one female, Kaawaloa, 1500 ft., June 1892.

#### STYRINGOMYIA Loew.

The specimen described below is perhaps the most interesting Dipteron in the whole collection. The genus was originally founded upon specimens preserved in copal, and a second species has been found in amber. In 1872 Baron C. R. Osten-Sacken discovered that the genus was represented in South Africa by an existing species, which however he did not describe.

#### (1) *Styringomyia didyma*, sp. nov.

♀. Long. corp.  $5\frac{1}{2}$  mm.; al. 4 mm. Antennae yellow, 1st joint twice the length of the second, light yellow above, infuscated at the sides, 2nd joint fuscous, palpi yellowish, darker at the tip. Thorax reddish-brown, with a large sub-triangular light yellow spot on each side immediately behind the suture and merging into the light yellow colour of the pleurae; halteres light yellow. Abdomen long and slender, light yellow, each segment with a pair of hemispherical dark brown spots near the posterior margin, on the 1st segment almost covering the whole of the dorsum, on the succeeding four segments smaller, on the 6th again larger, on the 7th more elongated, and almost coalescing with a central dark stripe which reaches the anterior margin. Hind legs (the only ones present in the specimen here described) stout, yellow, femora long-haired with two brown spots on the upper surface at a distance respectively of one-third and two-thirds from the base, tibiae slightly darker at the tip, thickly clothed with short hairs and furnished on their outer sides with a row of regularly disposed long bristles, tarsi hairy with the last joint dark brown. Wings yellowish-hyaline, veins pale, anterior transverse vein conspicuously infuscated, fork of anterior branch of the 4th vein and the posterior transverse vein slightly so, auxiliary vein difficult to distinguish from the first longitudinal vein owing to the flexure of the wing, terminating opposite the origin of the 2nd longitudinal vein, terminal section of the 2nd longitudinal vein straight, abruptly bending towards the costa, which it joins opposite the posterior transverse vein, 7th vein distinctly curved at the tip, terminating opposite the origin of the 2nd longitudinal vein.

HAB. Oahu, one female, Honolulu, November 1896.

Plate I. figs. 14—16, head, abdomen, wing.



## Fam. STRATIOMYIDAE.

SARGUS Fabricius.

(1) *Sargus*, n. sp.

Five specimens belonging to this genus are recorded but not described by L. O. Howard from Hawaii (Proc. Ent. Soc. Washington, Vol. iv. No. 4, p. 490, July 1901).

## Fam. SCENOPINIDAE.

SCENOPINUS Latreille.

(1) *Scenopinus niger* Mg.

Two females labelled "Hotel, Honolulu, 12. IV. 1892" agree tolerably well with European specimens of this species.

NOTE:—With the exception of the unidentified species of *Sargus* mentioned above and the Dolichopodidae this is the only fly belonging to the section Brachycera of the Sub-Order Orthorrhapha obtained by Mr Perkins in these islands, and even it is evidently introduced. It seems curious and perhaps significant that the large Families Asilidae, Bombyliidae and Empidae should be totally unrepresented. The absence of Tabanidae is not surprising, seeing that there are no indigenous Mammals.

## Fam. DOLICHOPODIDAE.

GNAMPTOSILOPUS Aldrich.

(1) *Gnamptopsilopus patellifer* Thomson.

*Psilopus patellifer* Thomson, Eugenes Resa, Diptera, p. 507. [Guam, Marianne Islands.]

HAB. Oahu, Waianae Mts., two males and twelve females, April 1892, on plant called Popolo; six males and nine females, Waialua, Koolau range, April 1892, on Popolo.—Hawaii, four females, Kona, 1500 ft., September 1892.

The Hawaiian examples correspond very well with Thomson's description. There is, however, in the latter no mention made of a peculiar structure situated in the hind tibiae of the male, at about one-fourth from the base. At this point the tibia appears, when seen from the side, to be swollen and distinctly grooved externally, and when seen from behind to be slightly bowed outwards and furnished inside the bend with a row of very short, erect bristles. The colour is much darker in the neighbourhood of this distortion, and hence the tibiae appear brown-ringed, even to the naked eye.

As Thomson only described the male, a short account of the other sex is here appended: ♀. Like the male, but lighter green, the abdomen generally with a coppery tinge. Arista of the antenna without the enlargement at the tip, halteres light with orange-coloured knob, legs much paler, femora entirely bright yellow, front tibiae with the three outer bristles longer, and also provided with two long bristles on the inner surface, intermediate tibiae with three or four bristles on the inner and outer sides, hind tibiae simple, with three long bristles on the outer side only, tarsi dark, wings with the posterior transverse vein much less bent, in some specimens almost straight.

This species appears to be very closely allied to *G. (Psilopus) globifer* Wied., but differs from that species by the fact that the fore tibiae are slightly longer than the metatarsi, the latter not being broad and compressed, while the wings are quite clear (compare Schiner's description in *Reise d. Novara, Dipt.* pp. 215—216).

Plate I. figs. 17—19, ♂ genitalia, wing, leg of ♂.

(2) *Gnamptopsilopus pallidicornis*, sp. nov.

♂. Long. corp. 5 mm.; al. 5 mm. Front and face metallic green, dusted with white tomentum, the former deeply excavated, clypeus snow-white, proboscis and palpi light yellow. Antennae with all the joints light yellow, arista apical, dark brown, about as long as the abdomen. Thorax bright metallic green, dusted in front with greyish-white tomentum, scutellum bluish-green, with two bristles, halteres light yellow. Abdomen very slender and laterally compressed, with first segment metallic green, second segment metallic green with the base and sides yellow, third yellow with a triangular green spot at posterior margin, fourth yellow with green posterior margin, fifth and sixth entirely metallic green with a coppery tinge, hypopygium with two slender light yellow filaments. Legs, including the coxae, entirely light yellow, tips of the tarsi a little darker, front pair with three whitish bristles on the coxae, otherwise without bristles, intermediate pair with about three weak ones on the under side of the femora and two on the outer side of the tibiae, viz. one about the middle and a minute one near the base, hind pair with two rows of minute bristles regularly disposed. Wings hyaline, slightly clouded near the tips of the 2nd and 3rd longitudinal veins, both of which are bent back towards the 4th, branch of the latter making a right angle at its origin, posterior cross-vein oblique, two-thirds of its length from the margin.

HAB. Oahu, one male, Honolulu, November 1896.

This species appears to be closely allied to *G. flavicornis* Aldrich (*Tr. Ent. Soc.* 1896, p. 342), described from the island of St Vincent. It is however much larger, and the arista of the antennae is apical.

Plate I. figs. 20 and 21, ♂ genitalia, wing.

## LIANCALUS Loew.

(1) *Liancalus metallicus*, sp. nov.

♂. Long. corp. 6 mm.; al. 5 mm. Dark metallic green. Vertex metallic green, front and face covered with white tomentum, proboscis and palpi black. Antennae entirely black, cilia of posterior orbit black. Thorax and scutellum dark metallic green, without stripes, the latter with two long bristles and two minute fine hairs, one on each side near the base, halteres pale yellow. Abdomen dark metallic green, unicolorous, first segment fringed on its posterior margin with long black hairs, succeeding segments also fringed, but with shorter hairs, hypopygium blackish, with the exterior appendages yellowish, rather short, sub-claviform, and tipped with long black hairs. Legs entirely black and shining, all the femora with a slight greenish tinge and a few small bristles near the tip beneath, fore tibiae with two, and intermediate with three bristles on their outer surfaces, hind tibiae with four or five bristles on the outer surface and three small ones on the inner surface. Wings tinged with brownish, which is deeper in their apical half, without spots, veins blackish, 1st longitudinal vein terminating at about one-fourth of the length of the costa, 3rd and 4th veins slightly converging in their apical third, posterior cross-vein slightly curved, about half its length from the posterior margin of the wing.

♀. Long. corp. 6—7 mm.; al.  $6\frac{1}{2}$ —8 mm. Very similar to, but larger than the male, with the wings much darker tinged.

HAB. Hawaii, one male, Olaa, December 1896.—Molokai Mts., 4—500 ft., one female, August 1893.—Kauai, one female, Waimea Mts., 4000 ft., 1894.

? *Gen. nov. et sp.* A male Dolichopodid from Waimea Mts., Kauai, obtained in 1894 at a height of 4000 ft., may form the type of a new genus. As the specimen is in bad condition, however, I prefer to leave it undescribed. It appears to be related to *Hydrophorus* and *Medeterus*, but the thorax has a concave depression behind, the scutellum has six bristles, the abdomen six segments, the last very short, the hypopygium not imbedded and the middle tibiae with long spines.

## CAMPSICNEMUS Walker.

(1) *Campsicnemus fimbriatus*, sp. nov.

♂ ♀. Long. corp.  $2\frac{1}{2}$ —3 mm.; al. 3—4 mm. Front greenish, slightly metallic. Antennae entirely reddish-yellow, third joint small, rounded at the tip and distinctly hairy, arista pubescent. Thorax ochraceous, shining, with a greenish and slightly metallic tinge on the dorsum, scutellum yellow, in the ♀ tinged with green at the base, halteres yellow. Abdomen in ♂ blackish, shading off into coppery and then greenish on the posterior half

of each segment; in the ♀ more uniformly black with a greenish tinge. Legs pale yellow, middle coxae with a large blackish spot on the basal half of their outer surfaces, fore femora in the ♂ and sometimes in ♀ brownish on their basal half, all the tarsi dark towards the tip. Fore femora without bristles, middle femora distinctly bent forward at the tip in the ♂, in both sexes with two or three large bristles at the tip, hind femora with a single bristle near the tip. Fore tibiae in both sexes with two bristles on the outer side, middle tibiae in the ♂ slightly curved, thickly and regularly covered with short hairs, on the outer surface with four strong bristles, on the inner surface with a row of very long, fine ones, in the ♀ much less hairy, with three bristles on the inner surface and four or five on the outer, hind tibiae in both sexes with about ten bristles. Wings dusky-hyaline, 3rd and 4th veins exactly parallel, posterior transverse vein more than twice its length from the posterior margin of the wing.

HAB. Hawaii, two males and three females, Kilauea, August 1895.

Plate I. fig. 22, intermediate femur and tibia of ♂.

(2) *Campsicnemus distortipes*, sp. nov.

♂. Long. corp. 2.5 mm.; al. 3 mm. Similar in all respects save the structure of the legs to *C. fimbriatus*. Fore legs entirely without long bristles, femora and tibiae straight, metatarsi bowed outwards and furnished on the inner side of the tip with a cushion of very short and thick black bristles. Intermediate femora with a single long and strong bristle on the hind surface near the tip, a row of somewhat finer regularly arranged and erect bristles on the basal two-thirds of the under surface and a number of fine long erect hairs on the apical half of the upper surface; tibiae curiously twisted and much enlarged at the tip, on the inner surface with one or two rows of shortish erect bristles, five or six long and strong bristles near the tip, on the outer surface of the expanded portion with a number of short stubble-shaped bristles; metatarsi short, bent and twisted, projecting beyond the insertion of the 2nd tarsal joint in the form of a blunt rounded process and also furnished with a short thick black spur behind, remaining tarsal joints normal and slender; hind femora with a single bristle near the tip above, tibiae with nine bristles on the outer surface, arranged in two rows, tarsi slender.

HAB. Hawaii, one male, Kilauea, August 1895.

Plate I. figs. 23 and 24, intermediate leg of ♂, outer and hind surfaces.

(3) *Campsicnemus calcaratus*, sp. nov.

♂. Long. corp. 2 mm.; al. 3 mm. Front dark brown. Antennae brownish, lighter towards the base. Thorax and scutellum obscure brownish-yellow, shoulders lighter, halteres light yellow. Abdomen unicolorous, dark brown. Legs pale yellow, tips of metatarsi and all the succeeding joints darker, fore pair unarmed save for two or three

small fine bristles near the tip of the femora, intermediate femora with a row of regularly disposed bristles beneath, tibiae thickly covered with hairs and bristles on both sides, on the inner side the bristles are very short and erect, on the outer side much longer, semi-erect and mixed with a number of more decumbent fine hairs, three or four long and strong bristles near the tip, metatarsus spurred, a little shorter and thicker than the succeeding joint, hind femora with some short hairs beneath and a single subapical bristle on the outer side, tibiae with about eight bristles in two rows on the outer side, and three (including the apical one) on the inner side, metatarsus shorter than succeeding joint.

HAB. Molokai Mts., 4—500 ft., 17th September 1893, one male.

Plate I. fig. 25, intermediate leg of ♂.

(4) *Campsicnemus*, sp.

A male specimen of a very peculiar species, unfortunately in too bad a condition for description, was obtained on the coast, Waianae, Oahu, in January 1897.

CHRYSOTUS Meigen.

(1) *Chrysotus spiniger*, sp. nov.

♂. Long. corp.  $2\frac{1}{2}$  mm.; al.  $2\frac{3}{4}$  mm. Front fuscous, with a slight greenish tinge, face narrow, silvery, eyes nowhere contiguous, palpi and proboscis black; antennae black, third joint a little excavated at the insertion of the arista, which hence appears to be subapical, cilia of orbit black. Thorax obscure bronzy, in the centre more shining and greenish, shoulders lighter, cinereous, pleurae greyish-green, scutellum bronzy-green, cilia of tegulae black, halteres light yellow. Abdomen bronzy-green, hypopygium concealed, only the dark brown tips of some of the appendages visible. Coxae dark, with a greyish tomentum, fore pair with some bristles near the tip, intermediate and hind pairs with a single bristle about the middle; femora dark brown with an aeneous tinge, tips and bases somewhat yellowish, fore and hind pairs with a single subapical bristle, intermediate with a strong subapical bristle in front, one or two smaller subapical ones beneath, and seven strong spine-like ones beneath, about the middle, the 6th (counting from the apex) the largest, the 7th a little smaller, and the first five about half the size; tibiae brownish-yellow, hind pair much thicker and darker towards the apex, almost clavate, fore pair with a single weak bristle on the outer side about one-fourth from the base, intermediate with a single bristle on the hind surface near the base, one near the middle on the outer surface, and four close together on the middle of the fore surface, hind tibiae with a single bristle on the hind surface at one-third from the base, two on the outer surface at one-third and two-thirds respectively from the base, and three or four at the apex; tarsi without bristles. Wings hyaline, posterior transverse

vein outwardly slightly convex, distant only about its own length from the posterior margin of the wing.

♀. Like the ♂ but face broader, not silvery, legs darker, blackish-brown with only the knees and bases of two front pairs of metatarsi a little lighter, femora with an aeneous tinge, hind tibiae not stouter than the others, bristles on all parts of the legs as in the ♂, except that in the intermediate pair the strong spines beneath the middle of the femora and the four bristles on the middle of the fore surface of the tibiae are absent.

HAB. Maui, Haleakala, five males and five females, at over 5000 ft., October 1896.  
Plate II. figs. 1, 2 and 2a, femur of ♂, wing, antenna.

(2) *Chrysotus hawaiiensis*, sp. nov.

♂. Long. corp.  $2\frac{1}{2}$  mm.; al.  $2\frac{1}{2}$  mm. Bright green. Front fuscous with a greenish tinge, face narrow, silvery, proboscis and palpi black, the latter slightly dusted with whitish; antennae black, third joint slightly excavated before the tip, which is blunt and hairy, arista sub-dorsal, cilia of orbit black. Thorax and scutellum shining metallic green, the latter with two longish bristles, pleurae blackish with cinereous tomentum, greenish above the middle coxae, halteres pale yellow, cilia of tegulae blackish. Abdomen dark green with a coppery tinge, first segment brighter and nearer the colour of the thorax, with long black hairs at the sides, rest of the abdomen covered with short, black hairs, hypopygium black and polished, showing a pair of sub-clavate appendages which are fringed with short brownish and tipped with longer black hairs. Fore coxae yellowish, brown at the base, two hind pairs blackish-brown, all with whitish tomentum, rest of legs light yellow, except the tips of the tarsi, which are dark brown towards the tip. Fore femora with a small, subapical bristle, intermediate pair with a subapical bristle on the fore surface, and a row of nine spine-like bristles on the under surface, extending along the apical two-thirds of the joint, the two nearest the base much longer and stronger, hind femora with two subapical bristles, one on the outer surface and the other (smaller) on the lower surface; fore tibiae with a bristle on the outer surface at one-third from the base and some fine, short hairs on the inner surface, intermediate tibiae with two bristles on the outer surface and three apical ones, hind pair with four on the outer surface, the two nearest the base being closer together, and a single apical one. Wings slightly brownish tinged, strongly iridescent, posterior cross-vein slightly convex outwardly, not quite its own length from the posterior border of the wing.

HAB. Hawaii, one male, Olaa, July 1895.

(3) *Chrysotus saxatilis*, sp. nov.

♂. Long. corp.  $2\frac{1}{2}$  mm.; al. 3 mm. Shining metallic green. Front and face shining metallic green, without tomentum, the latter rather broad; antennae black, third

joint excavated and the arista hence sub-dorsal; palpi and proboscis black. Thorax and scutellum shining metallic green, pleurae and metanotum greenish, with greyish-white tomentum, halteres bright orange-yellow, cilia of tegulae black. Abdomen concolorous with thorax, black-haired, hypopygium almost concealed, black, showing a rounded hairy protuberance and a pair of small, short-haired, lancet-shaped appendages. Legs blackish-brown, fore coxae and all the femora and tibiae with a metallic green tinge; coxae apparently unarmed, fore femora with a small subapical bristle on the outer side and armed beneath with about a dozen short spines, arranged in two rows, intermediate femora also with subapical bristle and armed beneath with a row of tiny spines, hind femora with two bristles on the outer surface, and a row of minute spines beneath, fore tibiae without conspicuous bristles, middle and hind tibiae each with about four bristles on the outer surface. Wings greyish-hyaline, posterior cross-vein straight or very slightly convex outwardly.

HAB. Oahu, four males, on wet rocks, Kaala Mts., over 2000 ft., March 1893.

Fam. PIPUNCULIDAE.

PIPUNCULUS Latreille.

(1) *Pipunculus molokaiensis*, sp. nov.

♂. Long. corp. 5 mm.; al. 7 mm. Front and face black, with white tomentum antennae with first two joints black, third acuminate, yellow with glistening white pubescence. Thorax and scutellum shining black, the former in front with a slight trace of tomentum, the latter furnished on its margin with about a dozen short bristles, pleurae black, meso- and metapleurae and metanotum with whitish tomentum, halteres yellow. Abdomen entirely shining black, the first segment with longish black hairs at the sides of its anterior half, and on its posterior half banded with white tomentum, hypopygium shining black. Coxae shining black, femora black with yellow bases and apices, tibiae yellowish, with obscure brownish-black rings in the middle, tarsi reddish-yellow with the apical joint black, claws and empodia light yellow, the former with black tips; fore femora beneath with two rows of fine short spines each near the tip, and about four fine hairs near the base, intermediate and hind femora with numerous spines beneath in their apical half, arranged in two rows. Wings slightly brownish tinged, clearer in their basal third, stigma dark brown, as long as the 4th costal segment, small cross-vein before the middle of the discal cell and opposite the termination of the auxiliary vein, second longitudinal vein long, terminating beyond the level of the posterior cross-vein, last two sections of the 4th longitudinal vein about equal in length.

♀. Long. corp. 4 mm.; al. 6 mm. Similar to the male, but a little duller. Ovipositor reddish-yellow, reaching to the 1st abdominal segment. Wings clear.

HAB. Molokai Mts., 3000 ft., a male and female taken in cop., September 1893; one female, 3000 ft., June 1893.

Plate II. figs. 3 and 4, male, wing.

(2) *Pipunculus nigrotarsatus*, sp. nov.

♂. Long. corp. 4 mm.; al. 6 mm. Front and face black, the latter with slight greyish tomentum. Antennae entirely black, third joint acuminate. Thorax and scutellum shining black, pleurae black, metanotum with greyish-white tomentum, halteres yellowish. Abdomen shining black, 1st segment with black hairs on lateral portion of anterior half and banded with greyish tomentum on posterior half, hypopygium shining black. Coxae shining black, femora black with yellowish bases and apices, tibiae yellow, slightly darker in the middle, tarsi wholly black. Wings very slightly brownish tinged, clear near the base, stigma light brown, as long as the 4th costal segment, small transverse vein a little beyond termination of auxiliary vein, second longitudinal vein terminating opposite the posterior cross-vein.

HAB. Hawaii, one male, Kona, 4000 ft., July 1892.

This species appears to be closely allied to *P. molokaiensis*, from which, however, it may at once be distinguished by the entirely black antennae and tarsi.

Plate II. fig. 5, wing.

(3) *Pipunculus rotundipennis*, sp. nov.

♀. Long. corp. 3 mm.; al.  $3\frac{1}{2}$  mm. Front and face black. Antennae entirely black, third joint acuminate, arista more gradually thickened at the base than in the preceding species. Thorax, scutellum, pleurae, metanotum, halteres and abdomen all shining black, ovipositor reddish-yellow, extremely short and only reaching the middle of the 3rd abdominal segment. Legs, with the exception of the knees, entirely black, apex of tibiae and base of tarsi a little lighter and covered with fine yellowish pubescence, all the femora with minute spines beneath. Wings short and rounded at the apex, greyish-hyaline, stigma colourless and extremely short, 1st longitudinal vein somewhat thickened at the tip, small transverse vein opposite termination of first longitudinal vein, and a little before the middle of the discal cell, 2nd longitudinal vein terminating opposite the posterior transverse vein, last two sections of the 4th longitudinal vein of equal length.

HAB. Hawaii, one female, Kilauea, December 1896.

Plate II. fig. 6, wing.



(4) *Pipunculus*, sp.

A male and female from Lanai appear quite distinct from any of the other species, but as they are both headless the description is better postponed until perfect examples are obtained.

## Fam. SYRPHIDAE.

## VOLUCELLA Geoffroy.

(1) *Volucella obesa* Fabricius.

*Syrphus obesus* Fab., Syst. Ent. 763 (1775).

HAB. Kauai, one male, Waimea Mts., May 1894; four females, Lihue, July 1896.

## ERISTALIS Latreille.

(1) *Eristalis tenax* Linnaeus.

*Musca tenax* Linn., Faun. Suec., ed. 2, p. 444, n. 1799 (1761).

HAB. Hawaii, two males and three females, Kona, 4000 ft., July and August 1892. This species is also recorded from Hawaii by L. O. Howard (Proc. Ent. Soc. Washington, vol. iv. no. 4, p. 490, July 1901).

## SYRITTA St Fargeau and Serville.

(1) *Syritta oceanica* Macquart.

*Syritta oceanica* Macquart, Diptères Exot. Suppl. V. p. 92, n. 6 (1855).

HAB. Hawaii, four specimens are recorded by L. O. Howard (Proc. Ent. Soc. Washington, vol. iv. no. 4, July 1901).

## XANTHOGRAMMA Schiner.

(1) *Xanthogramma grandicornis* Macquart.

*Syrphus grandicornis* Macquart, Diptères Exot. tom. II. pt. 2, p. 96, no. 16, tab. xvi. fig. 7 (1842).

HAB. Hawaii, two males, Kona, 4000—6000 ft., August and September 1892.—Oahu, two males, Kaala Mts., 1000—2000 ft., March 1892; two males and one female,

Waianae Mts., Oahu, April 1892. Also recorded from Hawaii by L. O. Howard (Proc. Ent. Soc. Washington, vol. iv. no. 4, p. 490, July 1901).

I have compared the specimens obtained by Mr Perkins with one of each sex in the British Museum collection from E. Wallaby Island and Sydney (or Moreton Bay?) respectively, and found them to agree in every respect.

Plate II. figs. 7—10, head, antenna, male genitalia.

Fam. OESTRIDAE.

OESTRUS Linnaeus.

(1) *Oestrus ovis* Linnaeus.

*Oestrus ovis* Linn., Faun. Suec., ed. 2, p. 430, n. 1734 (1761).

HAB. Kauai, a single male from Lihue, July 1896.

Fam. TACHINIDAE.

CHAETOGAEDIA Brauer and Bergenstamm.

(1) *Chaetogaedia monticola* Bigot.

*Blepharipeza monticola* Bigot, Ann. Soc. Ent. Fr. 1888, p. 91 [California and Kailua, Hawaii].

I have to confess myself unable to unravel the tangle of synonymy which surrounds the genera *Chaetogaedia* B. and B., *Acroglossa* Willist., *Prospheysa* V. d. Wlp. and their allies. For information on the subject see Brauer, Sitzber. K. Akad. Wissensch. Wien. Math.-Nat. Cl., Bd. CIV. Abth. I. pp. 10—13 (1895).

HAB. Hawaii, 4000 ft., August 1892 and 1896, two specimens.—Maui, Haleakala, above 5000 ft., October 1896, three specimens.—Lanai, Halepaakai, 3000 ft., July 1894, one specimen.—Kauai, Halemanu, May 1895, one specimen.

LEUCOSTOMA Meigen.

(1) *Leucostoma analis* Meigen?

A female from Molokai, May 1893, may belong to this South European species, especially as it is also recorded by Van der Wulp from Mexico (Biol. Centr. Amer. vol. II. pp. 206—207). It agrees well with the description there given.

## Fam. SARCOPHAGIDAE.

## DYSKRITOMYIA, gen. nov.

More or less metallic species, with silvery face. Head in profile subquadrangular owing to the somewhat prominent front, cheeks rather broad, quite bare and covered with silvery tomentum, chin (peristome) straight and horizontal or slightly sloping upwards towards the occiput, highly polished in all the species here described. Eyes bare, separated in the male by about one-fifth of the width of the head, in the female by about one-third. Antennae nearly as long as the face, third joint about four times as long as the second, the latter with a strong apical bristle, arista plumose with long hairs, bare towards the tip. Chaetotaxy of head as follows: vertical bristles in ♂ two, parallel and pointing backwards, in ♀ two inner like those of ♂ and two outer shorter, pointing backwards and outwards; ocellar bristles two, pointing forwards; in ♂ a single row of fronto-orbital bristles reaching from the vertex to the base of antennae, the three or four nearest the vertex parallel and pointing backwards, the others decussating in front view, erect when seen laterally; in ♀ the fronto-orbital are not quite so numerous, but near the vertex are two in an outer row pointing forwards. Vibrissa near the oral margin, which is somewhat projecting, a few small bristles at the bottom of the facial ridges, these never ascending more than halfway up the face, chin (peristome) with fine hairs on the surface and a row of strong bristles along the lower margin. Thorax with two humeral bristles, only one post-humeral, three dorso-central before the suture, the most anterior of which is much smaller and weaker than the others, three dorso-central behind the suture, three pairs of acrostichal, of which two are before the suture and the third between the hindmost dorso-central, two intra-alar, three supra-alar, and one pre-sutural which lies lower than the post-humeral. Scutellum with three pairs of lateral bristles, one pair of dorsal and one pair of apical, which decussate. First segment of abdomen without bristles, second and third segments each with two discal and a varying number of marginal bristles, fourth segment and end of abdomen very bristly. Tibiae with scattered bristles, never villose. Wings usually with distinct costal spine.

Type of genus: *D. [Catapicephala] limbipennis* Thoms.

This genus appears to be near *Catapicephala* Mcq. as defined by Br. and Berg. (Denk. Math. Nat. Cl. K. Akad. Wiss., Bd. LX. p. 162), but differs in the absence of bristles on the facial ridges and in the presence of *discal* setae on the second and third abdominal segments. In *Catapicephala* according to the authors referred to "setae orales longae crassae usque ad radicem antemmarum ascendentes. Macrochaetae tantum marginales in segmentis 2—4."

*Key to the species of Dyscritomyia.*

1. Fore metatarsus of ♂ armed with a curved and pointed spur-like projection  
 .....(1) *D. limbipennis* Thoms.  
 „ „ unarmed, simple .....2.

2. Costa of wings strongly tinged with fuscous .....(2) *D. hawaiiensis*, sp. n.  
 " " clear or only slightly dusky .....3.  
 3. Abdomen dark steely-blue, size larger .....(3) *D. claripennis*, sp. n.  
 " bright metallic-green .....4.  
 4. Abdominal segments with purplish-black hind margins .....(4) *D. fulgens*, sp. n.  
 " " unicolorous .....(5) *D. affinis*, sp. n.

(1) *Dyscritomyia limbipennis* Thomson.

*Catapicephala limbipennis* Thoms., Eugen. Resa. Dipt. p. 541 (1868).

This and the five following species appear to constitute a new and distinct genus as described above.

The following brief description of the male sex may be added to that of Thomson: Face and sides of frons yellowish-silvery. Second segment of abdomen with a pair of macrochaetae before the middle of the dorsum and another pair a little before the hind margin, third with a pair of dorsal and six hind marginal, fourth segment very bristly. First and third pairs of legs with tarsi of peculiar structure, with very small claws and pulvilli, intermediate pair normal. The fore tarsus is about two-thirds of the length of the tibia, the metatarsus as long as the succeeding four joints together and furnished at the base beneath with a peculiar curved and pointed projection, four apical joints gradually decreasing in length and thickness. The hind tarsus about two-thirds of the length of the tibia, but remarkably compact and tapering in appearance, owing to the peculiarly stunted joints successively decreasing in length and thickness.

HAB. Oahu, two males from Waianae Mts., 4. 1892, are evidently the species whose female is described by Thomson (*l.c.*) from Honolulu—at any rate they agree in all the characters which can fairly be assumed to be common to the two sexes.—Molokai, two females labelled “Molokai Mts., 3000 ft., 9. 1893” and “above Kalawao, Molokai, 4. 8. 93,” so closely resemble the males just described that they cannot well be separated. The face is silvery-white, however, without the slightest tinge of yellow.

Plate II. figs. 11—14, male, profile, leg, chaetotaxy.

(2) *Dyscritomyia hawaiiensis*, sp. nov.

♂. Long. corp. 7—8 mm.; al.  $6\frac{1}{2}$ — $7\frac{1}{2}$  mm. Similar in general appearance to *D. limbipennis* Thoms., but legs of normal structure, with large claws and pulvilli, face silvery-white, second and third segments of abdomen with two discal and six to eight marginal macrochaetae, wings tinged with fuscous on costal margin but not yellowish at the base, and the alulae purer white.

♀. Like the male, but second segment of abdomen with only two discal and two

marginal macrochaetae. Closely resembling the females of *D. limbipennis* from Molokai referred to above, but smaller, the wings clearer and without trace of yellow at the base.

HAB. Hawaii, three males and two females, Kona, 4000—6000 ft., July—September 1892.

(3) *Dyscritomyia claripennis*, sp. nov.

♂. Long. corp. 6 mm.; al.  $5\frac{1}{2}$  mm. A small, slender species. Face silvery-white, thorax dark bluish-green, abdomen slender, dark steely or greenish blue, hinder third of each segment blackish, macrochaetae long, two discal and two marginal on second segment, two discal and six marginal on third segment, wings quite clear, alulae pure white, legs as in *D. hawaiiensis*.

HAB. Hawaii, two males, Olaa, December 1896; one male, Kona, 3000 ft., October 1892.

(4) *Dyscritomyia fulgens*, sp. nov.

♂. Long. corp. 5 mm.; al.  $4\frac{1}{2}$  mm. Brilliant metallic green. Face and frons black with silvery tomentum, vertex shining bluish-green, antennae black, chin polished with a greenish tinge. Thorax and scutellum brilliant metallic green, with long macrochaetae. Abdomen brilliant metallic green, with a narrow purplish-black band running across the hind border of each segment, macrochaetae long and conspicuous, second segment with a pair of rather small discal ones and a pair of marginal, third segment with a pair of discal and six hind marginal, fourth segment with several strong bristles on the dorsum and sides. Legs black, the femora slightly tinged with metallic green, claws and pulvilli of normal size. Wings clear, very slightly dusky on the costal margin, costal spine absent, posterior transverse vein nearly straight, alulae yellowish-white.

HAB. Lanai, one male, 2000 ft., February 1894.

(5) *Dyscritomyia affinis*, sp. nov.

♂. Long. corp. 4 mm.; al. 4 mm. Brilliant metallic green like the preceding species, but abdomen with a coppery tinge, and without the dark hind borders to the segments. Wings quite clear, without costal spine, costal margin not dusky, posterior transverse vein with a strong double curve, apical transverse vein more curved than in the preceding species.

HAB. Oahu, two males, Waianae Mts., April 1892.

(6) *Dyscritomyia*, sp.

A male specimen from Haleakala, Maui (8000 ft., April 1894) appears to be quite distinct from any of the above species. As it is in bad condition, however, it is better to defer the description of such a form until better material is obtained. It appears to be characterised by a very broad silvery front and face, clear wings with the basal half of the costa infuscated, while the macrochaetae and soft hairs over the whole surface of the body appear to be of unusual length.

## PROSTHETOCOAETA, gen. nov.

Allied to *Dyscritomyia*, but body stouter, eyes of ♂ much closer together, almost touching, chin not highly polished, antennae with arista plumose much nearer to the tip. Thorax with three humeral bristles, two post-humeral, two or three dorso-central before the suture and three behind, four pairs of acrostichal, of which two are before the suture and two behind, two intra-alar, three supra-alar, and one pre-sutural, which lies higher than the second post-humeral. Abdomen in the ♂ with both discal and marginal macrochaetae on the second and third segments, the genitalia prominent.

Type of genus: *P. robusta*, sp. nov.

(1) *Prosthechaeta robusta*, sp. nov.

♂. Long. corp. 11 mm.; al. 10 mm. Bright metallic green, with a coppery tinge, thorax very slightly plumose. Antennae, palpi and proboscis blackish-brown, face and frons blackish, with silvery tomentum, oral margin distinctly yellowish, chin somewhat shining, transversely wrinkled, covered with fine black hairs on the surface and a row of strong bristles below, occiput with black setae above and long, fine, yellowish hairs in its lower part. First segment of abdomen with two discal and two central marginal macrochaetae, third segment with two discal and a row of about a dozen marginal macrochaetae, fourth segment thickly covered with bristles and long hairs. Wings clear, alulae fuscous, edged with yellowish-white, halteres with brownish stem and yellow club. Legs black, femora with slight metallic tinge and covered with long hairs and bristles, tibiae with scattered bristles, tarsi with very large claws and pulvilli.

HAB. Lanai, one male, Koele Mts., above 2000 ft., July 1894.

A female from Kauai (2—3000 ft., Jan.—Feb. 1897) may belong to this species. The tomentum on the face is decidedly yellowish, the colour of the thorax and abdomen blackish-green, much less shining, and the former distinctly covered with greyish tomentum.

The second segment of the abdomen is without discal macrochaetae, the third and fourth possess both discal and marginal. The wings are distinctly brownish tinged. The body throughout is much barer, owing to the extreme shortness of the finer hairs which are abundant and conspicuous in the male.

Plate II. figs. 15, side view of head, and 16, chaetotaxy of thorax.

(2) *Prostethochaeta lucilioides*, sp. nov.

♂ ♀. Long. 6—7 mm.; al.  $6\frac{1}{2}$ —7 mm. Face and frons blackish, with silvery tomentum, oral margin and vibrissal angle reddish-yellow, antennae blackish-brown, palpi reddish-yellow, occiput with black setae above and fine yellowish hairs below. Thorax bright metallic green, somewhat pollinose in front, scutellum green, abdomen bright metallic green with the first segment almost entirely and the base of the second at the sides light yellow, genitalia of ♂ prominent, brownish-yellow. In the ♂ the second and third segments have each two discal and five or six marginal macrochaetae, in the ♀ only fine marginal bristles are present. Legs with the fore coxae and femora light yellow, the latter darker at the tip, with fine pubescence within and three rows of long, regularly disposed bristles on the outer side, intermediate and hind coxae greyish-green, femora yellow with dark tips, all the tibiae dark brown and the tarsi black. Wings distinctly tinged with yellowish-brown, alulae yellowish.

HAB. Hawaii, Olaa, July 1895, one male; Kilauea, one female, September 1895.

Plate II. fig. 17, chaetotaxy of thorax.

(3) *Prostethochaeta obscura*, sp. nov.

♀. Long.  $6\frac{1}{2}$  mm.; al. 7 mm. Similar to *P. lucilioides*, but vertex tinged with dull metallic green, vibrissal angle dark, palpi dark brown, tomentum on face obscure yellowish rather than silvery. Thorax and abdomen duller green, the latter obscurely yellowish at the extreme base. Legs with fore coxae brownish-yellow and fore femora dark brown with a metallic green tinge, otherwise as in *P. lucilioides*. Wings quite clear.

HAB. Hawaii, Kona, 4000 ft., September 1892, one female.

(4) *Prostethochaeta fasciata*, sp. nov.

♂. Long.  $5\frac{1}{2}$ — $6\frac{1}{2}$  mm.; al. 5—6 mm. Metallic green, more or less covered with white tomentum, segments of abdomen narrowly edged behind with purplish black. Palpi and halteres yellow. Legs dark, the femora tinged with metallic green.

This species appears to be variable, but it may easily be recognized by the narrow

dark bands on the abdomen. It is represented in the present collection by three male specimens, from Kaala Mts., Oahu; Halemanu, Kauai; and Halepaakai, Lanai, respectively. In the Oahu example the first humeral and the second post-humeral bristle are extremely small, in the same specimen and that from Kauai I can only distinguish one pair of acrostichal bristles behind the suture, while in the specimen from Lanai there is a distinct third intra-alar bristle. In all the specimens the abdominal macrochaetae are well developed, while the genitalia are less prominent than in the other species. Although specifically very distinct, yet its generic position appears to be doubtful, and I therefore only provisionally include it in *Prostethochaeta*.

*Prostethochaeta*, spp.

A male from Kona, Hawaii, and a female from Lanai, apparently belonging to this genus, differ from any of the above species, but are in too bad a condition for description.

SARCOPHAGA Meigen.

(1) *Sarcophaga pallinervis* Thomson.

*Sarcophaga pallinervis* Thoms., Eugen. Resa. Dipt. p. 535 (1868). [Honolulu, California.]

In the present collection are the following specimens, which agree fairly well with the description of this species: Three males and three females from Kona, one male and two females from Kilauea (Hawaii), one female from Koele Mts. (Lanai), two males and two females from Waialua (Oahu), and one male from Koholuamano (Kauai).

In the present state of our knowledge of this difficult genus it is impossible to be sure of the identity of this form and it must be left to the future monographer to determine its value as a distinct species.

Plate II. figs. 18 and 19, chaetotaxy of thorax.

Two other species are described by Thomson from Honolulu, but they are not represented in the collection formed by Mr Perkins. The original descriptions are reproduced below:

(2) *Sarcophaga barbata* Thomson.

*Sarcophaga barbata* Thoms., Eugen. Resa. Dipt. p. 533 (1868).

"Fusco-grisea, antennis pedibusque nigris, ano obscure ferrugineo, capite griseo-albido; thorace vittis 3 nigris; alis hyalinis; abdomine maculis tessellatis olivaceo-et fusco-micantibus. ♀. Long. 11 mill.

"PATRIA: Insula Honolulu.



“Praecedenti similis [*S. occipitalis* Thoms.], capitis thoracisque colore, abdomine evidenter tessellato distincta; *S. principii* Wied. affinis. Caput griseo-albidum, occipite genisque pallido-barbatis; facie utrinque setulis pluribus seriatis, superne fronteque lateribus certo situ fulvo-micantibus. Thorax griseo-albidus, vittis 3 dorsalibus et juxta-laterali abbreviata nigris; scutellum vittis 2 nigro-fuscis, setis 2 lateralibus utrinque, apicalibus 2 minus validis et dorsalibus 2 ante apicem minoribus, erectis nigris armatum. Alae hyalinae, alula alba, nervis brunneis, basi dilutioribus, cubitalis ramo submarginali abscissa 1<sup>a</sup> ultra medium setulis 8—10 ornato. Abdomen segmento 2<sup>o</sup> et 3<sup>o</sup> tessellis glaucis distinctis, interiore basali sinistrorum inspecta 2<sup>i</sup> cum laterali posteriore confluenta, 3<sup>ii</sup> subquadrata, libera; setis apicalibus 8—10 in segmento tertio. Pectus griseum, haud maculatum.”

(3) *Sarcophaga dux* Thomson.

*Sarcophaga dux* Thoms., Eugen. Resa. Dipt. p. 534 (1868).

“Grisea, antennis, vitta media aequali frontali, ano pedibusque nigris, facie griseo-orchalcea, thorace vittis 3 nigris; alis hyalinis, nervis nigricantibus; abdomine vitta media strigisque lateralibus nigro-fuscis, tessellis olivaceo- et fusco-micantibus. ♂. Long. 12 mill.

“PATRIA: Honolulu.

“Praecedenti [*S. princeps* Wied.] ut ovum ovo simillima, facie lateribus pilis 2—3 tantum instructa, vitta frontali aequali, antrorsum haud dilatata, unguiculisque intermediis haud truncatis tantum distincta.”

Fam. MUSCIDAE.

CALLIPHORA Desvoidy.

(1) *Calliphora azurea*.

*Musca azurea* Fln., K. Vetensk. Akad. Förh. 1816, p. 245, n. 19.

HAB. Hawaii, a female from Kona, 4000 ft., July 1892, does not differ essentially from a British specimen of this species.

(2) *Calliphora vomitoria* Linnaeus.

*Musca vomitoria* Linnaeus, Syst. Nat. ed. x. vol. i. p. 595, no. 52 (1758).

HAB. Hawaii, a single specimen recorded by L. O. Howard (Proc. Ent. Soc. Washington, vol. iv. no. 4, p. 490, July 1901).

*Calliphora*, spp.

Two specimens, from Kilauea, Hawaii, June 1895, and Kauai, 2—3000 ft., Jan.—Feb. 1897 respectively, are evidently to be referred to this genus. They are both females in too bad a condition for description.

## LUCILIA Desvoidy.

(1) *Lucilia caesar* Linnaeus.

*Musca caesar* Linnaeus, Syst. Nat. ed. x. vol. i. p. 595, no. 50 (1758).

HAB. Hawaii, three specimens recorded by L. O. Howard (Proc. Ent. Soc. Washington, vol. iv. no. 4, p. 490, July 1901).

## PHORMIA Desvoidy.

(1) *Phormia regina* Meigen.

*Musca regina* Meigen, Syst. Besch. v. p. 58, no. 16 (1826).

HAB. Hawaii, four specimens recorded by L. O. Howard (Proc. Ent. Soc. Washington, vol. iv. no. 4, p. 490, July 1901).

## STOMORHINA Rondani.

(1) *Stomorphina pleuralis* Thomson.

*Idia pleuralis* Thomson, Eugen. Resa. Dipt., p. 542 (1868).

HAB. Hawaii, two specimens recorded by L. O. Howard (Proc. Ent. Soc. Washington, vol. iv. no. 4, p. 490, July 1901).

## STOMOXYS Geoffroy.

(1) *Stomoxys calcitrans* Linnaeus.

*Conops calcitrans* Linn., Syst. Nat. ed. x. vol. i. p. 604, no. 2 (1758).

One male, small, only about half the usual size, Kona, Hawaii, 4000 ft., 1893.

HAB. Lanai, one female, 2000 ft., January 1894. Also recorded from Hawaii by L. O. Howard (Proc. Ent. Soc. Washington, vol. iv. no. 4, p. 490, July 1901).

## HAEMATOBIA Desvoidy.

(1) *Haematobia serrata* Desvoidy.

*Haematobia serrata* Desvoidy, Myod. 389, no. 3 (1830).

HAB. Hawaii, five specimens recorded by L. O. Howard (Proc. Ent. Soc. Washington, vol. IV. no. 4, p. 490, July 1901).

## MUSCA Linnaeus.

(1) *Musca domestica* Linnaeus.

*Musca domestica* Linn., Faun. Suec. ed. II. p. 453, n. 1833 (1761).

HAB. Hawaii, one male, Olaa, July 1895.—Kauai, one male, Makaweli, 2000—3000 ft., June 1894. Also recorded from Hawaii by L. O. Howard (Proc. Ent. Soc. Washington, vol. IV. no. 4, p. 490, July 1901).

In the Diptera of the "Eugenies Resa" (1868) Thomson describes a species of this genus, to which he at the same time refers (as a variety) a form from Honolulu. The original description is reproduced below.

(2) *Musca flavinervis* Thomson.

Thomson, Eugen. Resa. Dipt. p. 547 (1868).

"Facie albida, vitta frontali media nigrobrunnea, latissima; thorace indumento albido obducto, vittis 4 nigris; alis nervis pallidis; abdomine caesio-subtessellato, basi utrinque macula rufescenti. ♀. Long. 6—7 mill.

"PATRIA: Insulae Rossii.

"*M. corvinae* similis et affinis, vitta frontali media quam laterali plus quam duplo latiore, abdomine macula utrinque basali magna, rufescenti; a *M. dorsomaculata* abdominis pictura, vitta frontali media latiore discedens; a *M. domestica* facie albida abdominisque colore diversa.

"VAR. ? Abdomine rufo, vitta media nigra.

"PATRIA. Honolulu."

## Fam. ANTHOMYIIDAE.

## HYDROTAEA Desvoidy.

(1) *Hydrotaea*, sp.

Two specimens belonging to this genus, and possibly of one species, were taken respectively at Halepaakai, Lanai (3000 ft.), in July 1894, and on the Mts. of Molokai (4500 ft.) in September 1893. They are both females in poor condition and therefore cannot be described with advantage.

## OPHYRA Desvoidy.

(1) *Ophyra leucostoma* Wiedemann.

*Anthomyia leucostoma* Wiedemann, Zool. Mag. i. 82 (1817).

HAB. Oahu, one female, Waianae Mts., April 1892. Four specimens recorded from Hawaii by L. O. Howard (Proc. Ent. Soc. Washington, vol. iv. no. 4, p. 490, July 1901).

(2) *Ophyra aenescens* Wiedemann.

*Anthomyia aenescens* Wiedemann, Auss. zweifl. Ins. ii. p. 435, no. 29 (1830).

HAB. Lanai, one female, 2000 ft., December 1893.

## HOMALOMYIA Bouché.

(1) *Homalomyia canicularis* Linnaeus.

*Musca canicularis* Linnaeus, Faun. Suec. ed. ii. p. 454, no. 1841 (1761).

HAB. Hawaii, two specimens recorded by L. O. Howard (Proc. Ent. Soc. Washington, vol. iv. no. 4, p. 490, July 1901).

## LISPE Latreille.

(1) *Lispe argenteifacies*, sp. nov.

♂. Long. corp.  $6\frac{1}{2}$  mm.; al.  $5\frac{1}{2}$  mm. Frons blackish, orbits and vertical triangle lighter, with greyish-yellow or almost golden tomentum, face cinereous, covered with bright silvery tomentum, cheeks nearly bare, antennae blackish with the apex of the second joint yellow, arista dark, long-haired, palpi yellow with silvery tips. Thorax with yellowish- or brownish-cinereous dorsum, pleurae and scutellum a little lighter, halteres light yellow. Abdomen cinereous, with paired triangular brown spots on the second and third segments, terminal segments with conspicuous hind-marginal and lateral bristles. Femora dark cinereous, their apices and all the tibiae reddish-yellow, tarsi dark reddish-yellow with the three apical joints of the fore pair and the two apical joints of the other pairs more or less blackish, apex of fore tibiae and the fore metatarsi with a cushion of minute black hairs on the inner side, all the femora armed with rows of bristles, fore tibiae without, intermediate and hind tibiae each with a single median bristle on the outer surface. Wings tinged with brownish-yellow, veins yellowish-brown, becoming darker towards the apex, tegulae whitish with yellowish-brown margins.

HAB. Lanai, two males from the Koele Mts. (over 2000 ft.), in July 1894.

A female from Kauai, 2—3000 ft., I. and II. 1897, may belong to this species. It only differs from the males here described as follows: face duller, the tomentum hardly silvery, cheeks more distinctly hairy, abdomen less bristly, with more or less distinct paired spots on all the segments, tarsi somewhat darker, only yellowish towards the base of the metatarsus, intermediate and hind femora much less bristly, wings only very slightly tinged.

*Lispe metatarsalis* Thoms. (Eugen. Resa. Dipt., p. 562), from Honolulu, must be closely allied to, and may be identical with, this species, but his description is too vague to render this a matter of certainty. For the sake of comparison it is here reproduced:

“Griseo-olivacea, palpis albedo-testaceis, antennis nigris, tibiis metatarsoque obscure testaceis; alis subfumatis; abdomine vitta media dorsali, lineam mediam angustam albidam includente, fusco-nigra. ♂. Long. 5 mill.

“PATRIA. Honolulu.

“Praecedenti [*L. vittipennis* Thoms.] simillima, facie griseo-cervina; thorace haud vittato; halteribus flavis; alis obscuris, subfumatis; abdomine pube griseo-albida, vitta media dorsali fusco-nigra, lineam angustam albidam includente, lateribus punctis nigris, setas et pilos longiores gerentibus; tarsis basi obscure testaceis bene distincta.”

(2) *Lispe cupreigena*, sp. nov.

♂. Long. corp.  $4\frac{1}{2}$  mm.; al. 4 mm. Very like the preceding species, but smaller, the face cinereous, the cheeks with a peculiar coppery tinge, abdomen with paired spots on the three last segments, tibiae and apices of femora lighter yellow, wings quite clear, tegulae whitish without dark margins.

HAB. Oahu, one male, Waialua, Koolau range, coast, March 1892.

*Lispe*, spp.

Two other species of this genus may perhaps be represented in the collection obtained by Mr Perkins. One of these, of which there is a single specimen from Kilauea, Hawaii (September 1895) and another from Molokai Mts. (4500 ft., September 1893) is a species about the size of *L. argenteifacies* and similar to it in many respects, but the face is covered with yellow, almost golden, tomentum, the cheeks are more hairy and the fore tarsi are entirely black. The specimens are too badly preserved to be described in detail. The other species is represented by four specimens in poor condition from Koholuamano, Kauai (April 1895) and one equally bad from Kona, Hawaii, 4000 ft. (August 1892). These are about the size of the second species described above, with the face greyish, the fore tarsi reddish-yellow at the base, and the wings slightly tinged.

## COENOSIA Meigen.

This genus appears to be represented in the collection before me by about twenty species. I have been unable to trace any description that can safely be applied to even one of these forms and have therefore described thirteen as new and left the rest (owing to bad or insufficient material) undetermined. The majority of the species described below are much larger than the average size of European and North American forms of this genus. The following table will facilitate their identification :

1. Palpi yellow .....	2.
,, black .....	(13) <i>C. ingens</i> .
2. Antennae entirely yellow .....	3.
,, partly or entirely dark .....	7.
3. Fore tarsi flattened and distinctly broader than the tibiae .....	(5) <i>C. latimana</i> .
,, slender, narrower than the tibiae .....	4.
4. Fore and intermediate tarsi light yellow or dark at the tip only .....	5.
,,                   ,, entirely dark .....	6.
5. Abdomen 6-spotted, hind femora dark at the tip .....	(1) <i>C. flavobasalis</i> .
,, not spotted, hind femora entirely yellow .....	(2) <i>C. seminigra</i> .
6. Thorax with dorsum and pleurae both covered with yellow tomentum ...	(3) <i>C. dexioides</i> .
,,                   ,, cinereous and pleurae yellowish .....	(4) <i>C. valida</i> .
7. Abdomen cinereous, unicolorous, not shining .....	(12) <i>C. rudis</i> .
,, shining black, hind borders of the segments very narrowly edged with yellowish-grey .....	(6) <i>C. dispar</i> , ♀.
,, partly yellow .....	8.
8. Abdomen with paired spots on the middle segments .....	(11) <i>C. biseta</i> .
,, without paired spots .....	9.
9. Abdomen with the three terminal segments banded anteriorly with cinereous ; wings brownish in apical half, clear in basal half .....	(10) <i>C. longipes</i> .
Abdomen not thus banded ; wings uniformly tinged .....	10.
10. Yellow of abdomen on the two basal segments .....	11.
,,                   ,, confined to the basal segment .....	(9) <i>C. striata</i> .
11. Antennae entirely dark .....	(6) <i>C. dispar</i> , ♂.
,, partly yellow .....	12.
12. Thorax covered with yellow tomentum .....	(7) <i>C. triangulifera</i> .
,,                   ,, dark grey tomentum .....	(8) <i>C. kauaiensis</i> .

(1) *Coenosia flavobasalis*, sp. nov.

♂. Long. 5 mm. ; al.  $4\frac{1}{2}$  mm. Front about one-fourth of the width of the head, reddish-brown, orbits and vertical triangle light yellowish-grey ; face silvery white ; palpi pale yellow ; antennae entirely pale yellow, arista dark brown, yellow at the base and distinctly but shortly plumose. Thorax and scutellum yellowish-grey, shoulders more distinctly yellow, pleurae and metanotum light cinereous ; two presutural dorso-central bristles. Halteres light yellow. Abdomen with the first segment entirely yellow, second

segment with a large triangular greyish patch which leaves only the anterior angles yellow and a pair of widely separated blackish spots on the dorsum, third and fourth segments entirely grey, each with a pair of spots like those on the second, apical segment grey, unspotted, genitalia reddish-brown, all the segments with long bristles at the sides, the three last with bristles on the dorsum also. Legs yellow, tarsi and the tips of the hind femora darker, all the femora armed with strong bristles, fore and intermediate tibiae with three apical and one subapical bristle, the latter also with a median bristle behind, posterior tibiae with about ten bristles (including the apical ones) arranged in several rows. Wings clear, tegulae greyish-white.

HAB. Hawaii, one male, Olaa, July 1895.

(2) *Coenosia seminigra*, sp. nov.

♂. Long.  $3\frac{1}{2}$  mm.; al. 3 mm. Front one-third of the width of the head, central stripe dusky yellow, becoming reddish-yellow near the base of the antennae, orbits and vertical triangle lighter with brightish yellow, almost golden, tomentum, face and palpi light yellow, antennae entirely yellow, basal joints somewhat darker than the third, arista dark brown, lighter towards the base and distinctly pubescent on its basal half. Thorax yellowish-grey with two presutural dorso-central bristles, halteres light yellow. First segment of abdomen bright yellow with a large subtriangular dorsal brown spot, second segment with a much larger brown spot which leaves only the anterior angles, the extreme lateral edge and a very narrow hind margin yellow, third segment wholly blackish, shining, with a yellowish narrow hind margin, fourth segment shining black, genitalia in the single specimen obtained exposed and of complicated structure. Bristles of body long and conspicuous, arranged as in *C. flavobasalis*. Legs with the coxae, femora and tibiae entirely light yellow, tarsi much darker with the apical joints blackish, fore femora with three rows of bristles, intermediate femora with a row of bristles beneath and a single long and fine bristle on the hind surface a little before the middle, hind femora with numerous bristles behind and beneath, arranged in three rows, fore tibiae with three bristles at or near apex and a single median outer one, intermediate tibiae with six apical or subapical bristles, one outer median and one short bristle on the outer side at about one-fourth from the base, posterior tibiae with about ten bristles arranged in several rows as in *C. flavobasalis*. Wings slightly greyish tinged, veins dark, except at the extreme base, tegulae yellowish.

HAB. Hawaii, Kilauea, July 1895, one male.

(3) *Coenosia dexioides*, sp. nov.

♂. Long. 6 mm.; al. 6 mm. Front one-fifth of the width of the head, central stripe reddish-brown, orbits and vertical triangle with yellowish-grey tomentum, face light

yellowish-grey, almost silvery, palpi yellow, antennae reddish-yellow, 3rd joint lighter than basal ones, arista dark except at the extreme base and shortly plumose. Thorax with only one large presutural dorso-central bristle, yellowish-grey on the dorsum with a faint indication of three longitudinal lines along the course of the dorso-central and acrostichal bristles, pleurae and scutellum more yellowish, halteres light yellow. First and second segments of abdomen light yellow, the latter with a faint (sometimes hardly perceptible) brownish triangular spot on the dorsum, third and fourth segments yellowish-grey, each with two large adjacent or contiguous black spots on the dorsum. Bristles of abdomen very long, 1st and 2nd segments with long fine hairs but no strong bristles on the dorsum, 3rd segment with two, and 4th segment with six hind marginal bristles, 2nd to 4th segments each with a lateral bristle situated half-way between the fore and hind margins, genitalia somewhat prominent, giving the apex of the abdomen an almost clavate appearance. Legs with the coxae, femora and tibiae entirely light yellow and the tarsi blackish, all the femora with several long bristles, fore and intermediate tibiae with five apical and one long externo-median bristle, hind tibiae with two long bristles near the middle of the outer surface, the one nearer the apex being of unusual length and subtended by another of almost equal length on the inner surface, a few conspicuous bristles also near the apex and three or four short ones on the hinder surface. Wings distinctly yellowish-tinged, with the veins yellow, tegulae also yellowish.

♀. Like the male, but the dark longitudinal lines on the thorax a little more distinct, and the colour of the 1st two abdominal segments darker, on the 2nd a trace of a dark dorsal line or spot, fourth segment without conspicuous bristles.

HAB. Hawaii, two males and one female, Kona, 2000 ft., September 1892.

(4) *Coenosia valida*, sp. nov.

♀. Long.  $7\frac{1}{2}$  mm.; al. 7 mm. Front one-fifth of the width of the head, central stripe black, becoming reddish-brown near the antennae, orbits in front with yellowish, behind with cinereous tomentum, vertical triangle cinereous, face light yellowish-silvery, palpi yellow, antennae as in *C. dexioides*, but hairs of arista decidedly shorter. Thorax as in *C. dexioides*, but the dorsum bluish-cinereous and only the pleurae yellowish, scutellum yellowish with a bluish-grey spot on each side near the base, halteres yellow. Three basal segments of abdomen yellow, the first with a small transversely oval brown spot behind the middle of the dorsum, the second with a pair of dark brown spots separated by a cinereous streak, the third with a pair of smaller brown spots more widely separated on a cinereous ground, fourth segment entirely cinereous; the third segment has a pair of strong bristles on the middle of the hind margin and a smaller and finer pair on the anterior third of the dorsum, the other segments without dorsal bristles but furnished as in *C. dexioides* with lateral bristles. Legs as in *C. dexioides*. Wings with the veins slightly infuscated with yellowish-brown, tegulae yellowish.

HAB. Maui, one female, Haleakala, 5000 ft., May 1896.



(5) *Coenosia latimana*, sp. nov.

♂. Long. 7 mm.; al. 6 mm. Front one-fifth of the width of the head, black, vertical triangle shining black, orbits with light yellow tomentum, face silvery yellow, palpi yellow, antennae pale yellow with the basal joints a little darker, arista black, pale yellow at the base and very shortly plumose near the middle. Thorax with two distinct presutural dorso-central bristles, dorsum, pleurae and scutellum light yellowish-grey; mesopleura with a row of unusually numerous fine bristles behind, and near each end of the row a stronger bristle, halteres pale yellow. First two segments of abdomen entirely pale yellow, third segment pale yellow in front, behind yellowish-cinereous with two dark brown spots, fourth segment yellowish-cinereous with two similar but smaller spots; lateral bristles on all the segments as in the previous species, first two segments without dorsal bristles, third with two, and fourth with a row of six on the hind margin, end of the abdomen bristly and somewhat thickened. Legs with the coxae, femora and tibiae entirely light yellow, fore and intermediate tarsi with the first two and the basal half of the third joints yellow, the remaining joints dark brown, hind tarsi? (absent in the single specimen obtained). Fore femora with three rows of bristles on the outer and hinder surfaces and a short row near the base of the inner surface, fore tibiae with a long fine externo-median bristle and numerous fine shorter hairs beneath, fore tarsi flattened, distinctly broader than the tibiae, the metatarsus narrower in its basal half and furnished beneath with three or four peculiar fine anteriorly curved hairs near the base, at the apex of this and the following joints on each side is a single hair similar to those near the base and also a short strong spine, claws and empodia large. Intermediate femora with a row of spines beneath, the three nearest the base much longer than the rest, a few spines on the anterior surface and two near the tip on the upper surface, intermediate tibiae with a single externo-median bristle, three or four apical bristles and a very strong apical spine beneath, which is nearly as long as the metatarsus, intermediate tarsi slender and a little longer than the tibiae. Hind femora with two rows of rather strong bristles, hind tibiae with three long bristles on the outer surface, a smaller one on the under surface, one on the inner surface, and three or four at the apex. Wings clear in the basal half with the veins light yellow, slightly fuscous and with the veins dark towards the apex, tegulae yellowish-white.

HAB. Lanai, one male, Mts. Koele, over 2000 ft., July 1894.

Plate II. fig. 20, fore tibia and tarsus of ♂.

(6) *Coenosia dispar*, sp. nov.

♂. Long.  $6\frac{1}{2}$  mm.; al. 6 mm. Front almost one-third of the width of the head, blackish-brown, vertical triangle light brown, orbits with light cinereous tomentum, face silvery, palpi yellow, antennae entirely black, arista pubescent. Thorax with two pre-

sutural dorso-central bristles, dorsum, pleurae and scutellum slaty-grey, halteres bright yellow. Two basal segments of abdomen light yellow with a central longitudinal dark brown stripe, which is widened towards the hind margin of the second segment, remainder of abdomen shining blackish with a little greyish tomentum, all the segments with fine lateral bristles, second with a row of fine hind marginal, third with a row running across the middle and a row of rather stronger hind marginal bristles, fourth segment and end of abdomen with numerous bristles, genitalia prominent. Legs yellow with black tarsi, fore femora with a dark brown streak above near the apex, intermediate and hind femora with broad blackish rings at the apex which do not quite meet beneath; fore femora with a row of strong bristles above and a row of longer ones below, between which are numerous shorter bristles, intermediate femora with two strong bristles near the apex above and a few on the under surface, hind femora with a row above and two rows of somewhat scattered bristles below, fore and intermediate tibiae with four or five apical, and the latter also with a median external bristle, hind tibiae on the inner surface with two bristles, one beyond the middle and the other at the apex, and on the hind surface with about seven long bristles in two rows. Wings slightly dusky towards the apex, with dark veins, tegulae yellowish-white.

♀. Long. 7 mm.; al. 7 mm. Larger and stouter than the ♂, front as in that sex but the orbits ferruginous without tomentum, face with yellow tomentum instead of silvery. Thorax and scutellum blackish-brown, rather shining, pleurae cinereous. Abdomen entirely blackish, shining, segments very narrowly edged with greyish-yellow, bristles on median segments as in the ♂. Fore femora ringed with black like those of the posterior legs. Wings more decidedly dusky, tegulae darker, with yellowish margins. In all other respects like the male.

HAB. Molokai Mts., one male and one female *in cop.* and two females, 4500 ft., September 1893; one female, 6500 ft., September 1893.

(7) *Coenosia triangulifera*, sp. nov.

♂. Long. 5 mm.; al.  $4\frac{1}{2}$  mm. Front about one-third of the width of the head, dark reddish-brown, orbits and vertical triangle with yellowish tomentum, face with bright yellow tomentum, palpi yellow, antennae dark brown with the base of the third joint yellow, arista dark and subplumose. Thorax with two presutural dorso-central bristles, dorsum, pleurae and scutellum yellowish cinereous, on the dorsum a faint trace of three brown lines, halteres yellow. First two segments of the abdomen yellow, the first with a longitudinal dark brown central line and the second with a large triangular spot of the same colour, the base of which extends almost across the segment, leaving only a narrow hind marginal edging of yellow, third and fourth segments yellowish cinereous, the third with a dorsal anterior and two lateral posterior ill-defined brown spots, all the

segments with lateral bristles, second to fourth with distinct hind marginal bristles, the third and fourth also with discal ones. Legs yellow, fore and intermediate tarsi at the tip and hind tarsi wholly blackish, hind femora with an incomplete blackish apical ring, fore femora above and beneath with strong bristles, intermediate femora with three or four apical bristles above and three or four along the basal half beneath, hind femora with numerous bristles arranged in several rows, fore tibiae with several bristles at or near the apex but no median one, intermediate tibiae with four apical, two subapical, and one externo-median bristle, hind tibiae with about ten bristles in three rows and a strong apical spine beneath. Wings clear, veins dark, tegulae yellowish.

♀. Long. 6 mm. ; al. 6 mm. Like the male, but the front narrower, a little darker, the orbits narrower, antennae with the 1st, 2nd and base of 3rd joints yellow. Thorax with the anterior presutural dorso-central bristle small. Abdomen with an oval brown spot on the first segment placed on the middle of the hind margin, instead of the central longitudinal line, second segment with the angles of the brown spot rounded off, third and fourth segments blackish with the sides and anterior angles cinereous, third segment with two conspicuous bristles near the middle of the hind margin, these being the only strong ones present on the dorsum of the abdomen. Legs yellow with all the tarsi blackish, the hind femora as in the male, and the intermediate femora sometimes darkened at the tip, fore tibiae with a median external bristle, hind tibiae with a very long bristle about the middle of the inner surface and the other bristles somewhat longer than those of the male.

HAB. Hawaii, Kilauea—one male, August 1896, one female, September 1895, one female, December 1896.

(8) *Coenosia kauaiensis*, sp. nov.

♂. Long. corp. 5 mm. ; al.  $4\frac{1}{2}$  mm. Front about one-third of the width of the head, dark reddish-brown, orbits and vertical triangle dull cinereous, face with dull yellowish tomentum, palpi yellow, antennae dark brown with the base of the third joint yellow, arista dark, and sub-plumose almost to the tip. Thorax with only one presutural dorso-central bristle, dorsum, pleurae and scutellum dark cinereous, halteres yellow. First segment of abdomen yellow, with a large triangular shining blackish-brown spot on the dorsum and a dark brown spot on each side at the anterior angle, second segment shining blackish-brown with only the anterior angles yellow and the posterior margin yellowish cinereous, third segment shining blackish with the anterior portion narrowly cinereous and the hind margin yellowish cinereous, fourth segment and end of abdomen shining blackish; all the segments with lateral and the second to fourth with hind marginal bristles. Legs yellow, tarsi darker, hind femora black in their apical half; bristles much as in *C. triangulifera*. Wings clear, veins dark, tegulae whitish-yellow.

HAB. Kauai, one male, 4000 ft., July 1896.

(9) *Coenosia striata*, sp. nov.

♀. Long. corp.  $4\frac{1}{2}$  mm. ; al. 4 mm. Front one-third of the width of the head, dark reddish-brown, orbits and vertical triangle lighter, with obscure greyish tomentum, face with greyish-yellow tomentum, palpi light yellow, antennae obscure yellowish-brown, the basal joints darker, arista dark, pubescent in the basal half. Thorax with two presutural dorso-central bristles, obscure cinereous with three narrow stripes on the dorsum and the region between the humeri and the insertion of the wings brownish, pleurae and scutellum cinereous, halteres yellow. Abdomen shining blackish, with the first and fifth segments obscure reddish-yellow, all the segments with a narrow yellowish hind margin, first three with lateral and the third and fourth with hind marginal bristles. Legs yellow, intermediate and hind femora darker at the tip and all the tarsi black; fore femora with three rows of bristles, those on the under surface much longer than the rest, intermediate and hind femora with one row of bristles in front, and two rows beneath, the former with two subapical bristles above and the latter with one, fore tibiae with two subapical bristles in front and one apical bristle beneath, otherwise unarmed, intermediate tibiae with one externo-median, two subapical and three apical bristles, hind tibiae with seven bristles, two on the outer, two on the hinder, and one on the inner surface, and two at the apex beneath. Wings dusky, especially in the apical half, veins dark, except at the base, tegulae slightly tinged with yellow.

HAB. Oahu, one female, Kawailoa gulch, April 1893.

(10) *Coenosia longipes*, sp. nov.

♀. Long. corp. 8 mm. ; al.  $7\frac{1}{2}$  mm. Front one-fourth of the width of the head, reddish-brown, the orbits, vertical triangle and face covered with light yellowish-grey tomentum, palpi yellow, antennae with the first two and the base of the third joints yellow, rest of the third joint dark brown, arista very long, dark brown, and subplumose on its basal third. Thorax with only one prominent presutural dorso-central bristle, dorsum shining, cinereous, with three dark brown stripes before the suture, scutellum concolorous, pleurae much lighter, halteres light yellow. Abdomen shining blackish, first segment with a large subquadrate very pale yellow spot on each side at the base, extending over the side to the venter and behind on to the lateral anterior portion of the second segment, second to fourth segments each with a narrow cinereous band on the anterior margin, on the second and third this band is slightly emarginate in the middle, all the segments very narrowly edged behind with yellowish-white; strong lateral bristles are present on all the segments, first two segments with fine hind marginal, third and fourth each with two strong dorsal and several hind marginal bristles. Legs long and slender, fore coxae and all the femora yellow, of the latter the

front pair at the tip and the two posterior pairs in their apical half dark brown, tibiae brownish-yellow, tarsi black ; all the femora with three rows of long conspicuous bristles, fore tibiae with a long and intermediate tibiae with a rather shorter externo-median bristle, both with three or four apical bristles, the intermediate pair with a very long apical one beneath, hind tibiae with a long bristle at the middle of the inner surface, three long ones on the outer surface and four or five apical or subapical ones, fore tarsi with a long slender hair on each side at the tip of each joint. Wings clear in their basal half, but distinctly infuscated in their apical half, veins dark, tegulae hyaline with yellowish margins.

HAB. Hawaii, one female, Kilauea, December 1896.

(11) *Coenosia biseta*, sp. nov.

♀. Long.  $6\frac{1}{2}$  mm. ; al. 6 mm. Front one-fifth of the width of the head, black, orbits, vertical triangle and face with yellowish-grey tomentum, palpi yellow, antennae obscurely yellowish with the apical two-thirds of the third joint dark brown, arista long, shortly plumose on its basal half. Thorax with two presutural dorso-central bristles, the anterior of which is much smaller than the other, dorsum, pleurae and scutellum light yellowish-cinereous, halteres light yellow. Abdomen with the first segment entirely yellowish, second yellowish with two dark brown spots on the middle of the dorsum, between the spots the ground-colour is cinereous, third cinereous with two subquadrate black spots, the anterior and posterior margins both yellowish, fourth cinereous with a large black spot covering the greater part of the dorsum ; all the segments with lateral bristles, second segment with a hind marginal row of weak bristles, third segment with two small bristles near the middle of the dorsum, a pair of very strong and conspicuous bristles near the middle of the hind margin, and a single weaker bristle on each side of the latter, fourth segment with a few weak hind marginal bristles. Legs including the fore coxae yellow, tarsi blackish ; fore femora with four and intermediate femora with three rows of conspicuous bristles, the latter also with two subapical bristles above, hind femora with three rows of long bristles, fore and intermediate tibiae with a long, conspicuous externo-median bristle and several strong apical and subapical bristles, that beneath the apex of the intermediate pair nearly as long as the metatarsus, hind tibiae with two very long bristles on the outer surface, one very long curved one near the middle of the inner surface, one long subapical one on the hinder surface and three or four shorter ones at the apex, fore tarsi similar to those of *C. longipes*. Wings slightly yellowish-tinged, veins dark, tegulae yellowish.

HAB. Hawaii, one female, Olaa, December 1896.

(12) *Coenosia rudis*, sp. nov.

♂. Long. corp. 4—4½ mm. ; al. 3½—4 mm. Front one-third of the width of the head, blackish, orbits and vertical triangle with dull yellowish-grey and face with brighter yellowish tomentum, palpi yellow, antennae reddish-yellow with the apical half of the third joint blackish, arista blackish, pubescent in the basal half. Thorax with two unequal presutural dorso-central bristles, dorsum, pleurae and scutellum cinereous, halteres bright sulphur-yellow. Abdomen cinereous, unicolorous, third and fourth segments with some rather weak hind marginal bristles and all the segments with lateral bristles. Legs yellow, tarsi more obscurely yellow, brownish towards the tip, fore femora with a row of bristles above and a row of longer ones below, intermediate femora with two or three scattered bristles on the fore and hind surfaces, and two subapical ones above, hind femora with two rows, fore and intermediate tibiae with the usual apical and subapical bristles, the latter also with an externo-median one, hind tibiae with six or seven strong bristles on the outer and hind surfaces arranged in pairs. Wings clear, veins dark, tegulae yellowish.

HAB. Maui, two males, Haleakala, 5000 ft., March and April 1894.

(13) *Coenosia ingens*, sp. nov.

♀. Long. corp. 7—8 mm. ; al. 6—7½ mm. A large and comparatively stout species. Front about one-fourth of the width of the head, wholly black with the orbits and vertical triangle shining, face blackish with only a slight brownish-grey tomentum, palpi and antennae entirely black, arista slightly pubescent near the base. Thorax with two unequal presutural dorso-central bristles, dorsum, pleurae and scutellum shining black, shoulders and pleurae with a little greyish tomentum, halteres bright yellow. Abdomen shining black, segments very narrowly edged behind with greyish-white, only the third and fourth segments with conspicuous dorsal bristles, the former with two in the middle of the dorsum and a row along the hind margin, the latter with both dorsal and hind marginal bristles. Legs entirely black and shining, only the fore knees slightly reddish, fore femora with four rows of rather fine, long bristles, intermediate and hind femora each with three rows of similar bristles, the former also with two and the latter with one subapical bristle on the upper surface, fore and intermediate tibiae with the usual apical and a long externo-median bristle, the latter in the fore pair very long, hind tibiae with two long bristles on the outer surface, one long bristle about the middle of the inner surface, one long porrect bristle near the apex of the hind surface, and three or four shorter apical ones. Wings more or less brownish-tinged, especially towards the anterior border, veins dark, tegulae whitish, the upper one darker.

HAB. Molokai Mts., three females, 4000 ft., May 1893.—Maui, one female, Haleakala, 5000 ft., October 1896.—Hawaii, one female, Kilauea, September 1895.

(14) *Coenosia*, sp.

A female specimen, in bad condition, from Kilauea, Hawaii (September 1895), is quite distinct from any of the species here described. The thorax is dark brown with light cinereous shoulders and pleurae, and the commencement of two dorsal stripes of the same colour on the middle of the anterior margin. The abdomen appears to be dark brown with three pairs of large black spots. The legs are blackish with reddish-yellow knees.

(15) *Coenosia*, sp.

A small species (3 mm.) with cinereous unicolorous thorax and abdomen and blackish femora, is represented by four specimens from Molokai Mts. (4000—6500 ft.), June to September 1893, but they are not in good enough condition for description.

(16 and 17) *Coenosia*, spp.

Two species, not described here, are also represented in the collection formed by Mr Perkins, but the material is in too bad a condition for description. They are from Kona, Hawaii, and Molokai Mts. respectively.

## ACRITOCHEATA, gen. nov.

Front about one-third of the width of the head in both sexes, slightly prominent; face slightly inclined backwards and deeply excavated, the cheeks and chin extremely narrow, facial ridges sharp-edged, a single strong vibrissa and a few shorter bristles near the oral margin, chin with a row of fine, short bristles. Eyes bare, large, oval. Antennae large, inserted considerably above the middle of the face and reaching almost to the oral margin, arista almost bare, very thick in its basal half and gradually tapering towards the apex. Proboscis a little longer than the head, palpi long and rather thick but not clavate. Thorax with very short and inconspicuous macrochaetae on the dorsum, so that it is difficult to distinguish them from the surrounding pubescence; of the dorso-central bristles four post-sutural may be distinguished which decrease much in size from behind, before the suture are three or four very small bristles of which perhaps two may be reckoned as macrochaetae; about six irregular rows of tiny bristles may be distinguished between the two rows of dorso-central bristles, and between the last pair of the latter four more distinct pre-scutellar bristles; scutellum with two small dorsal, two decussating apical and a large and small pair of lateral bristles. Abdomen ovoid and a little broader than the thorax, in the male with conspicuous subanal appendages, in

both sexes without conspicuous bristles on the dorsum. Legs simple, with only a few weak bristles, claws and pulvilli minute. Wings broad and short, broadly rounded at the tip, and without costal spine; auxiliary and first longitudinal veins rather widely separated, the latter ending a little beyond the middle of the wing, third longitudinal vein distinctly curved towards the fourth, anal vein not reaching the margin, anterior transverse vein about the middle of the discal cell and distinctly before the tip of the first longitudinal vein, posterior transverse vein straight; tegulae large, the under scale about twice as long as the upper.

This genus seems to be allied to *Charadrella* V. d. Wlp. and *Pygophora* Schiner, but differs from both in the extremely small cheeks and chin, the bare arista, the shape of the abdomen, and the nature of the bristles.

(1) *Acritochaeta pulvinata*, sp. nov.

♂ ♀. Long. corp. ♂  $3\frac{1}{2}$ , ♀ 4 mm.; al. ♂  $2\frac{1}{2}$ , ♀ 3 mm. Front reddish-yellow near the antennae, gradually darkening to blackish-brown near the ocelli, orbits and vertical triangle in the ♂ with yellowish, in the ♀ with light cinereous tomentum, face obscure greyish-yellow, palpi yellow in the ♂, blackish in the ♀, antennae dark brown with the basal joints obscure reddish-yellow, arista dark at the tip, reddish-yellow in its basal half. Thorax cinereous with three narrow brown longitudinal lines, shoulders yellowish, in one specimen conspicuously reddish-yellow, pleurae light cinereous, scutellum cinereous with reddish-yellow apex, halteres pale yellow. Abdomen reddish-yellow, gradually becoming cinereous towards the tip, first segment with a more or less distinct pair of brown spots near the posterior margin, second and third each with a pair of large conspicuous triangular dark brown spots, the bases of which nearly touch the posterior margin, fourth segment with a pair of similarly-coloured small round spots; in addition to these markings a dark, more or less interrupted line runs down the centre of the dorsum, becoming more distinct on the middle segments. Legs yellow, in the ♂ the apical half of the fore tibiae and the fore tarsi are blackish, while the fore femora are peculiarly bent upwards and furnished with a small pad or cushion of tiny hairs on the upper surface near the apex, ♀ with the fore femora (except at the base and apex), the apical half of the fore tibiae and the fore tarsi blackish, and the tips of the hind tibiae slightly darkened; all the femora with weak bristles on the lower surface, those on the fore femora a little stronger in the female, intermediate pair with a strong sub-apical bristle above, fore tibiae only with a few apical or subapical bristles, intermediate pair in addition with a small externo-median bristle and hind pair with about four short ones on the outer and hinder surfaces. Wings hyaline and strongly iridescent, veins light brown, tegulae yellowish.

HAB. Hawaii, one male and two females, Oloa, July 1895.

Plate II. figs. 21, head of ♂, side view; 22, fore leg of ♂; and 23, wing.



## HOPLOGASTER Rondani.

(1) *Hoplogaster* (?) *dubia*, sp. nov.

Long. corp. 3—3½ mm. ; al. 2½—3 mm. Front one-third of the width of the head, reddish-yellow anteriorly, darker behind, orbits and vertical triangle with cinereous tomentum, cheeks and chin with a yellowish tinge, antennae short and thick, the two basal joints reddish-yellow and the third joint blackish, arista bare and dark. Thorax cinereous, with 1 presutural and 3 post-sutural dorso-central bristles, scutellum cinereous with reddish-yellow apex, halteres yellow. Abdomen variable in colour, in some specimens dark cinereous, in others with more or less of a reddish-brown or even reddish-yellow tinge, fourth segment in the male with hind marginal bristles, otherwise without conspicuous bristles, genitalia of the ♂ rather prominent. Legs yellow with black tarsi, fore femora with a row of bristles above, intermediate femora with three subapical bristles above, hind femora with a few bristles near the apex above and below, tibiae with large apical and subapical bristles, the hind pair also with two pairs on the outer surface and a single bristle on the inner surface just beyond the middle. Wings hyaline, veins yellowish, anterior transverse vein a little before the termination of the first longitudinal, anal vein short, tegulae small, subequal, transparent with reddish-yellow margins.

HAB. Hawaii, two males and four females, Oloa, July 1895.

On account of the small, subequal tegulae I have placed this species provisionally in the genus *Hoplogaster* Rond., although I do not feel quite satisfied that such is the correct position for it.

*Anthomyidae*, spp.

Three species, each represented by a single female specimen, appear to belong to the *Coenosinae*, but in the absence of better material it is wiser to defer their description. They were obtained at Haleakala (Maui), Koholuamano (Kauai), and Kawailoa gulch (Oahu) respectively.

## Fam. SCIOMYZIDAE.

## SCIOMYZA Fallen.

(1) *Sciomyza*, sp.

A specimen belonging to this genus, without antennae and otherwise in too poor a condition for description, was obtained on the coast at Waialua, Oahu, in February 1893.

## Fam. ORTALIDAE.

## ACROSTICTA Loew.

(1) *Acrosticta pallipes*, sp. nov.

♂ ♀. Long. corp. 3—3½ mm.; al. 3—3½ mm. Very like *A. scrobiculata* Lw., but differs as follows: legs pitchy-brown, anterior coxae and femora entirely yellow, the former somewhat metallic at the base, intermediate femora towards the tip and tibiae more or less yellow, intermediate and hind metatarsi yellow. Wings with the first and basal half of the second costal cell fuscous, apical half of the second clear, third dark; posterior transverse vein more outwardly inclined, and parallel with the inner one.

HAB. Hawaii, one male, Oloo, November 1896; one female, Kauai, 4000 ft., October 1895.

Only three other species of this genus are known, viz. *A. scrobiculata* Lw., from Mexico and Brazil; *A. foveolata* Lw., from Brazil; and *A. dichroa* Lw., from California (San Francisco).

## EUXESTA Loew.

(1) *Euxesta annonae* Fabricius.

*Musca annonae* Fab., Ent. Syst. 358, 189 (1794).

*Tephritis annonae* Fab., Syst. Antl. iv. p. 320, 19.

*Ortalis annonae* Wied., Auss. Zweifl. II. p. 463, 11.

*Urophora quadrivittata* Macq., Suites à Buffon, II. p. 456, 5.

*Euxesta annonae* Loew, Berl. Ent. Zeitschr. XI. p. 305, tab. II. f. 13 (1867), and Monog. Dipt. N. Amer. Pt. III. p. 162, tab. IX. f. 13 (1873).

HAB. Oahu, a male from Waialua, coast, February 1893; Hawaii, a female from Kona, 1500 ft., September 1892. These specimens agree so well with Loew's description and figure that I hesitate to regard them as distinct. The species has been hitherto recorded from South America and the West Indies.

## Fam. TRYPETIDAE.

## DACUS Meigen.

Although the following species is not in the collection formed by Mr Perkins, yet, in order to render the present contribution more complete, I have thought it advisable to reproduce the original description.

(1) *Dacus cucurbitae* Coquillett.

*Dacus cucurbitae* Coquillett, Ent. News Philad. 1899, p. 129.

“Head light yellow, the occiput, except the sides and upper margin, reddish-yellow, an ocellar black dot, front marked with a brown spot in front of its center and with three pairs of orbital brown dots, a black spot on each side of the face near the middle and a brown spot on the middle of each cheek; antennae, palpi and proboscis yellow, the latter mottled with brown. Thorax reddish-yellow, the humeri, a median vitta on the posterior half of the mesonotum, another on each side above the insertion of the wings, uniting with an irregular band which extends upon the pleura to the upper part of the sternopleura, also a large spot on each side of the metanotum, encroaching upon the hypopleura, light yellow; scutellum, except its extreme base, light yellow, bearing two bristles. Abdomen light yellow on first two segments, reddish-yellow on the others, the extreme base, a fascia at the bases of the second and third segments, usually a lateral spot on the fourth and fifth, also a dorsal vitta on the last three segments, blackish or brownish; first segment of the ovipositor of the female slightly longer than the fifth segment of the abdomen. Wings hyaline, the apex of the subcostal cell from a short distance in front of the apex of the auxiliary vein, the marginal and submarginal cells, the median third of the first basal cell and a large spot in upper outer corner of the first posterior cell, brown; anal cell brown, this color encroaching on the third posterior cell and bordering the sixth vein almost to its apex; posterior crossvein bordered with brown, this color extending to the hind margin of the wing; upper end of the small crossvein also bordered with brown. Halteres light yellow. Legs light yellow, the broad apices of the femora and the last four joints of the tarsi reddish-yellow, hind tibiae reddish-yellow or dark brown. Length 6 to 8 mm.”

HAB. Oahu.—“Honolulu, Hawaii. Two males and two females bred by Mr George Compere from larvae living in green cucumbers. Type No. 4207, U. S. Nat. Museum.”

Five specimens of this species are also recorded from Hawaii by L. O. Howard (Proc. Ent. Soc. Washington, vol. iv. no. 4, p. 490, July 1901).

## TEPHRITIS Latreille.

(1) *Tephritis crassipes*.

*Trypeta crassipes* Thoms., Eugen. Resa. p. 583, n. 260 (1868).

HAB. Hawaii, one male, Kona, 4000 ft., July 1892; one female, Kona, 4000 ft., September 1892.—Kauai, one female, 2000—3000 ft., Jan.—Feb. 1897.—Oahu, one female, Waianae Mts., 3000 ft., April 1892. All agree exactly with Thomson's description.

(2) *Tephritis limpidapex*, sp. nov.

♂. Long. corp. 4 mm.; al. 4 mm. Front dark purplish-brown, orbits and vertical triangle obscure cinereous, face brownish-yellow with a slight greyish tomentum, palpi dark brown, antennae short, reddish-brown. Thorax slaty-grey, with two pairs of macrochaetae on the dorsum, which is also covered with golden pubescence, pleurae yellowish-grey with copper-coloured pubescence, scutellum slaty-grey with two setae and covered with golden pubescence. Abdomen slaty-grey, likewise covered with golden hairs and with a few black bristles at the tip. Legs light reddish-brown. Wings with a fuscous reticulated pattern which commences near the base of the wing but leaves a comparatively large space at the apex quite clear, first costal cell quite clear, second clear with two or three small brown spots touching the costal vein, third clear with an oblique hour-glass-shaped brown spot, marginal cell with two large and a third small limpid spot touching the costa, the former extending into the submarginal cell, which has three limpid spots touching the costa, the posterior of these forming the upper portion of the clear apical section of the wing, first posterior cell with the reticulation covering its basal two-thirds, first basal and discoidal cell entirely covered with fuscous, each with many small subequal limpid spots, third posterior and anal cells with very little reticulation.

HAB. Maui, one male, Haleakala crater, October 1896.

Plate II. fig. 24, wing.

(3) *Tephritis cratericola*, sp. nov.

Long. corp. ♂ 3—3½ mm., ♀ incl. ovipositor 4—5 mm.; al. 3—4 mm. Front reddish-brown, sometimes a little lighter behind, orbits, vertical triangle and a narrow central stripe (which is sometimes absent) cinereous, occiput with very pale setae, face cinereous or with a yellowish tinge, antennae blackish, with the first two joints lighter, and in the female sometimes yellowish-brown, proboscis and palpi yellow, the latter with dark tips. Thorax dark cinereous with three narrow, rather indistinct, blackish lines on the dorsum, which with the pleurae is thinly covered with very pale pubescence, scutellum with two setae and similar pubescence, halteres dark fuscous. Abdomen blackish, slightly shining, covered with short black hairs and a few bristles on the terminal segment, genitalia of ♂ conspicuous, blackish with pale pubescence, ovipositor of ♀ shining black, as long as the four preceding segments. Legs blackish-cinereous, fore tibiae, fore and intermediate knees and all the tarsi lighter, varying from reddish-yellow to pitchy-brown, fore femora with bristles above and below, fore metatarsus of ♂ expanded, shorter than the succeeding joint and furnished with conspicuous long bristles. Wings hyaline with fuscous reticulation and showing the following principal features:

two conspicuous patches of fuscous, the larger one subquadrate, extending from the costa to the fourth longitudinal vein, with its inner edge in a line with the posterior transverse vein and generally including only a single hyaline spot which touches externally the tip of the second vein, the other patch much smaller, filling up all but the apex of the third subcostal cell; from the large fuscous patch three irregular fuscous streaks extend to the posterior margin of the wing, one running over the posterior transverse vein and the other two crossing the middle of the second posterior cell, from the inner edge of the same patch a fuscous streak runs across the submarginal and marginal cells, reaching the costa about opposite the anterior transverse vein.

HAB. Maui. This species is represented in the collection by 33 males and 28 females, all taken within the crater of Haleakala, at a height of 8000 ft. Two of the males were captured in April 1894, all the other specimens in October 1896.

Plate II. fig. 25, wing.

PHAEOGRAMMA, nov. gen.

Head in profile subquadrate, front unusually flat and longer than the face, which is slightly concave with the oral margin slightly projecting, chin with a single dark and a few light-coloured bristles, occiput with short stubby setae, one of which occurs also on each side of the front, behind the uppermost fronto-orbital bristles, the latter four in number; the three anterior pointing forward and the posterior one backward, antennae nearly as long as the face, third joint concave in front and obtusely pointed, arista thick and very slightly pubescent, eyes broadly and obliquely oval, proboscis short and stout, palpi clavate. Thorax with two pairs of bristles on the dorsum, the anterior pair further apart than the posterior, scutellum subtriangular with only two bristles. Abdomen conical. Legs, except the fore femora, unarmed. Wings long and rather narrow, much exceeding the abdomen, costal spine conspicuous, costa slightly undulate, first longitudinal vein bristly, third unarmed and parallel with the fourth, the latter in its last section slightly undulate, otherwise quite straight, discal cell long and narrow, the anterior transverse vein very near its apex, much beyond the tip of the first vein and about two-thirds of the length of the wing from its base, anal cell drawn out into a short point, picture of the wings in the single species described consisting of three transverse bands in the apical half and two bands running longitudinally from the base and uniting with the innermost transverse band.

Type of genus: *P. vittipennis*, sp. nov.

The peculiarly flattened front, the bisetose scutellum and the unusual pattern of the wings will readily serve to distinguish this genus from its allies.

(1) *Phaeogramma vittipennis*, sp. nov.

♂ ♀. Long. corp. 3—3½ mm.; al. 3—3½ mm. Front yellow in front, a little darker behind, orbits and vertical triangle cinereous with bright almost silvery tomentum, occiput with a row of light yellow short and thick setae running entirely round from vertex to chin, the uppermost four on each side longer and stouter than the rest, with an interval between each set which is just behind the ocelli, behind the uppermost fronto-orbital bristle on each side is also a similar light yellow seta, face cinereous below the antennae, cheeks, chin, antennae and palpi yellow, proboscis a little darker. Dorsum of thorax very light cinereous, with a central longitudinal olive-brown stripe, which is narrow in front but becomes much broader behind, besides the macrochaetae the entire surface is covered with short golden hairs, pleurae and scutellum yellowish-brown, halteres obscure brownish with lighter knob. Abdomen dark olive-brown, shining; in the male covered with rather long golden hairs, in the female these hairs are extremely short so that the segments appear pitted rather than hairy, ovipositor shining blackish, about as long as the two preceding segments and covered with golden hairs on its basal half. Legs entirely reddish-yellow, fore femora with two rows of short bristles on the upper surface and a row of four or five much longer ones below, intermediate tibiae with black apical spine. Wings hyaline with fuscous bands as follows: a longitudinal band running from the base along the costa for two-thirds of the length of the wing and filling up all the space between the costal and the third longitudinal vein, near its termination a more or less distinct hyaline spot, a longitudinal band running from the base over the anal cell (which it completely fills) and along the fifth longitudinal vein to its termination. Connecting the terminations of these longitudinal bands is a transverse one which runs over both transverse veins, beyond this is a second transverse band, the outer edge of which is concave and commences exactly at the tip of the second longitudinal vein, and a third shorter one at the extreme apex of the wing which includes the tips of the third and fourth longitudinal veins.

HAB. Molokai Mts., two males and one female, 3000 ft., September 1893.

Plate II. figs. 26, head, side view; and 27, wing.

## Fam. PIOPHILIDAE.

## PIOPHILA Fallen.

(1) *Piophila casei*, Linnaeus.

*Musca putris* β. *casei* Linn., Faun. Suec. 2nd ed. p. 456, n. 1850 (1761).

A single specimen, unfortunately without head, from Kona, Hawaii, 4000 ft., August 1892, agrees well with British examples of this species.

## Fam. EPHYDRIDAE.

## NOTIPHILA Fallen.

(1) *Notiphila insularis*, sp. nov.

♂ ♀. Long. corp.  $3\frac{1}{2}$  mm. ; al.  $3\frac{1}{2}$  mm. Front brownish-grey, with the orbits and a central stripe light yellowish-grey ; face light yellowish-grey, with two or three bristles near the oral margin ; proboscis reddish-brown, palpi light yellow ; antennae light reddish-yellow, the third joint only very slightly infuscated towards its tip. Thorax and scutellum light yellowish-grey, pleurae and metanotum light greenish-grey, halteres light yellow. Abdomen greenish-grey, with four rather obscure brownish spots on the first and second segments, two similar ones on the third, and two very small ones on the fourth. Legs with the fore coxae and all the femora dark brown, covered with greenish-grey tomentum, knees, tibiae and tarsi entirely reddish-yellow ; intermediate femora with a few bristles in the apical half beneath, intermediate tibiae with three conspicuous bristles on the outer surface. Wings hyaline, veins yellowish-brown.

HAB. Oahu, one male and one female, Waialua, Koolau range, February 1893.

## BRACHYDEUTERA Loew.

(1) *Brachydeutera argentata* Walker.

*Notiphila argentata* Walker, Ins. Saundersiana Dipt. p. 407 (1856).

*Brachydeutera dimidiata* Loew, Monog. Dipt. N. Amer. i. p. 163 (1862).

HAB. Hawaii. A single specimen of this already well-described North American species was obtained by Mr Perkins at Olaa in July 1895. Three specimens are also recorded from the same island by L. O. Howard (Proc. Ent. Soc. Washington, vol. iv. no. 4, p. 490, July 1901).

## SCATELLA Desvoidy.

(1) *Scatella hawaiiensis*, sp. nov.

♂ ♀. Long. corp.  $2\frac{1}{2}$ — $2\frac{3}{4}$  mm. ; al.  $2\frac{1}{2}$  mm. Front shining black with a slight greenish tinge ; face shining greenish-black with a little brownish tomentum, a pale spot below the base of each antenna, a row of three conspicuous bristles down each side and the oral margin fringed with fine hairs ; antennae quite black, arista with distinct pubescence on the upper side. Thorax shining brownish-black, the shoulders and front margin greenish-cinereous, pleurae and metanotum greenish-cinereous, a brown patch

on the mesopleurae, scutellum shining black, with two large subapical and two small lateral bristles, halteres light yellow; dorsum of thorax with three pairs of dorso-central bristles. Abdomen shining blackish. Legs entirely black. Wings brownish-grey, with five pellucid spots, the largest in the submarginal cell and subquadrate, two in the first posterior cell nearly as large, and one on each side of the posterior transverse vein, that on the inner side being much smaller than the others, subrotund and touching the fifth longitudinal but not reaching the fourth; the three upper spots stretch entirely across the cells in which they are contained; costal vein reaching the tip of the fourth vein.

HAB. Oahu. Eight males and six females were obtained on wet rocks in the Kaala Mts., at a height of 2000 ft., in March 1893.

This species appears to be closely allied to *S. stagnalis* Fln., but is distinguished from the latter by possessing three bristles on the face. It can, moreover, be distinguished from most of the species (but not all) with spotted wings by possessing three pairs of dorso-central bristles on the thorax, a character which belongs rather to the group possessing clear wings.

Plate III. fig. 1, wing.

#### Fam. DROSOPHILIDAE.

##### IDIOMYIA, gen. nov.

Front slightly convex, with three fronto-orbital bristles, the anterior about midway between the insertion of the antennae and the vertex and pointing forward, the other two pointing backward, orbital stripes abruptly terminated about or a little beyond the middle of the front, to which the vertical triangle nearly reaches; face slightly excavated, the oral margin distinctly reflexed, a few small bristles at the vibrissal angle, proboscis very thick, palpi thick and clavate, eyes large, round or slightly oval and distinctly pubescent. Antennae short, the first joint hardly distinguishable, the second large with a convex upper surface, so that between it and the third there is a distinct indentation, third joint large, oval and rounded at the extremity, arista bipectinate, sometimes also with short pubescence, bare at the base beneath. Thorax with two pairs of widely-separated macrochaetae behind the middle, scutellum subtriangular, rather flat, with a pair of lateral bristles and a pair of decussating apical ones. Abdomen slender and narrower than the thorax, subconical and obtuse in the male, pointed in the female; the latter sex possesses a more or less upturned ovipositor and a peculiar supra-anal process furnished with long stiff hairs. Legs long and slender, with few or no bristles. Wings much longer than the abdomen, auxiliary vein rudimentary, first longitudinal vein not quite reaching a third of the length of the wing, second and third longitudinal veins more or less curving upward in their basal half and then running parallel or nearly so to their termination, the third ending at the tip of the wing,



fourth vein nearly straight, fifth straight as far as the posterior transverse vein and then curved suddenly downwards to the posterior margin of the wing, sixth rudimentary; between the third and fourth longitudinal veins two transverse veins are present, one opposite or a little beyond the termination of the first longitudinal vein, the other opposite or a little beyond the posterior transverse vein, the two last sections of the fourth vein as thus divided about equal in length, discal cell united with the posterior basal cell, anal cell present but inconspicuous.

Type of genus: *I. perkinsi*, sp. nov.

As only one male of this genus is represented in the collection (that of the typical species) it is impossible to say yet whether certain characters, such as the strong curvature of the costa and the tuft of hairs on the fore tibiae are of specific or only sexual value, but I rather suspect the latter to be the case.

*Key to species.*

1. Scutellum dark with yellow median stripe .....2.  
    ,, entirely dark on dorsum, with bright yellow margin .....(4) *I. picta*.
2. Face, antennae, and palpi black .....3.  
    Face yellowish, antennae with basal joints obscurely yellow, palpi yellow.....(3) *I. oahuensis*.
3. Metanotum with yellow median stripe, femora with only the bases and tips  
    infuscated.....(1) *I. perkinsi*.  
    Metanotum entirely black, femora blackish with tips yellowish .....(2) *I. obscuripes*.

(1) *Idiomyia perkinsi*, sp. nov.

♂. Long. corp. 7 mm.; al. 8 mm. Front reddish-yellow with a transverse brown band behind the antennae, orbits as far as the most anterior fronto-orbital bristle and the vertical triangle black, face, proboscis, palpi and antennae black, the second joint of the latter with a tuft of stiff, black hairs, arista with long hairs along the whole length above and the apical half below, also with a very short thick pubescence between the long hairs. Thorax with the greater part of the dorsum blackish, anterior edge yellow with two median longitudinal black lines, humeri and lateral edges yellow, pleurae yellow with a shining black patch above the front coxae and a smaller one beneath the root of the wings, scutellum and metanotum black with yellow median stripe, halteres light yellow. Abdomen blackish-brown, shining, with obscure yellow markings at the anterior angles of each segment, the whole of the dorsum covered with fine bristles which are somewhat longer near the hind margin of each segment. Legs reddish-yellow, the apices and bases of all the femora and the two hinder pairs of tibiae slightly infuscated, fore femora with a few bristles on the outer side, fore tibiae with a conspicuous tuft of hairs at the base, intermediate tibiae with a strong subapical and a single apical bristle, hind tibiae with only a rather weak subapical bristle. Wings slightly tinged with yellowish-brown, the apex broadly infuscated, leaving a very narrow margin

between the tips of the second and third veins and a little broader space between those of the third and fourth veins lighter, a fuscous spot at the termination of the first longitudinal vein, all the transverse veins and the apex of the penultimate section of the fourth longitudinal vein also infuscated, the costa strongly curved forward just beyond the termination of the first longitudinal vein, second longitudinal vein strongly and third slightly curved forward about the middle of the wing; of the transverse veins between the third and fourth longitudinal veins the inner one is just beyond the termination of the first longitudinal vein and the outer one exactly opposite the posterior transverse vein, the latter strongly curved inward towards the base of the wing.

HAB. Molokai Mts., one male, above 4000 ft., June 1893.

Plate III. figs. 2, side view of head, 3, antenna, and 4, wing.

(2) *Idiomyia obscuripes*, sp. nov.

♀. Long. corp. 6 mm.; al.  $6\frac{1}{2}$  mm. Head in all respects like that of *I. perkinsi*. Thorax blackish-brown, before the suture two yellowish-cinereous central stripes, humeri and lateral edges yellow, pleurae for the greater part shining blackish, scutellum and halteres as in *I. perkinsi*, metanotum entirely black. Abdomen blackish-brown, shining, without any trace of yellow markings. Legs obscure yellowish, femora blackish with only the apices yellowish, fore tibiae without tufts of hair. Wings like those of *I. perkinsi*, but the costa nearly straight.

HAB. Maui, two females from Haleakala, 5000 ft., April 1894 and May 1896.

This form is evidently very closely allied to *I. perkinsi*, and may possibly prove to be only the female of that species. On account of the different locality and the difference in the colour of the dorsum of the thorax, the metanotum and the femora, it is perhaps better for the present to regard it as distinct.

(3) *Idiomyia oahuensis*, sp. nov.

♀. Long. corp. 6 mm.; al. 7 mm. Front yellow, posterior half of orbits and the vertical triangle black, face and palpi obscure yellowish, proboscis blackish, antennae obscure reddish-yellow with the third joint light brown, second joint with numerous black hairs, arista with long hairs along the whole length above and the apical two-thirds below, also with a number of shorter hairs between the long ones on the upper side. Thorax reddish-yellow with two broad black stripes on the dorsum which are approximated behind and deeply excavated on their outer side so as to appear almost hook-shaped, humeri shining black, pleurae, scutellum, metanotum and halteres as in *I. perkinsi*. Abdomen shining blackish, obscurely yellow at the base, ovipositor and supra-anal process

reddish-yellow, the former slightly upturned and about as long as the last abdominal segment. Legs coloured much as in *I. perkinsi*, the fore femora with bristles as in that species, the fore tibiae without conspicuous hairs. Wings similar to those of *I. perkinsi*, but the costa not arched, the tips of the second, third and fourth longitudinal veins infuscated and a patch of fuscous in the marginal cell near the termination of the first longitudinal vein.

HAB. Oahu, one female, Kawaiiloa gulch, April 1893.

(4) *Idiomya picta*, sp. nov.

♀. Long. corp. 5 mm.; al. 6 mm. Front light yellow in front, reddish-yellow behind, in one specimen entirely of the latter colour, orbits as far as the anterior fronto-orbital bristles and vertical triangle blackish with yellowish-cinereous tomentum, face light yellow, proboscis and palpi black, antennae black, the apex of the second joint more or less pale, arista with only four or five hairs on the upper surface and two or three on the apical half of the lower surface, without pubescence. Thorax yellowish-cinereous before the suture and almost entirely blackish-brown behind, the dark portion sending forward two central lines which extend a little in front of the suture, opposite their termination on each side is a small isolated dark spot, while external to the two central lines the dark colour is indented by the light ground-colour, humeri bright yellow, pleurae dark yellowish-cinereous, scutellum blackish on the dorsum with bright yellow margins, metanotum dark cinereous, halteres yellow. Abdomen shining blackish, ovipositor dark reddish-yellow. Legs obscure yellowish, fore femora more or less dark brown and the tips of the others slightly infuscated. Wings hyaline with a brownish tinge in the marginal cell, a small fuscous patch over the termination of the first and junction of the second and third longitudinal veins, the tips of the second, third and fourth veins broadly infuscated, transverse veins and apical portion of the penultimate section of the fourth vein also broadly infuscated; the outer of the transverse veins between the third and fourth longitudinal veins distinctly beyond the posterior transverse vein, the latter directed outward and straight, the outer posterior angle of the discal cell therefore less than a right angle, costa not arched, venation otherwise as in the preceding species.

HAB. Maui, three females, Haleakala, above 5000 ft., October 1896.

HYPENOMYIA, gen. nov.

Front broad and almost parallel-sided, with three fronto-orbital bristles on each side of the posterior half, the lowest one pointing forward, and the other two backward, the middle one much the smallest, two vertical bristles near the upper angle of the eye,

one upright and the other pointing outwards, two ocellar bristles pointing forwards and two upright ones behind the vertical triangle; face perpendicular, about as long as the front and distinctly convex longitudinally, at the lower angle on each side is a conspicuous row of strong black bristles which are curved inwards in front of the face; chin with a few bristles; proboscis thick, palpi clavate; eyes large, oval; antennae with the third joint oval, rounded at the end, longer than the first two joints taken together, arista long, with long hairs along the whole length of the upper surface and a few on the apical half beneath. Thorax with two pairs of conspicuous and one or two pairs of smaller dorso-central bristles behind the suture, two humeral, one presutural, two notopleural and four supra-alar bristles; scutellum with two lateral and two apical decussating bristles. Abdomen rather small, conical, in the male with seven distinct segments, the sixth furnished with a row of long fine hairs near the hind margin and with a curious spatulate appendage below, attached by a slender pedicel to the hind margin, seventh segment small, laterally compressed and furnished with long, rather tortuous hairs. Legs rather stout, the tibiae a little thicker at their extremities, the hind pair slightly bent. Wings large, much exceeding the abdomen; last segment of fourth longitudinal vein nearly three times as long as the penultimate, posterior transverse vein oblique, and hence making an acute angle with the fifth longitudinal, anal cell small but distinct.

Type of genus: *Hyphenomyia varipennis*, sp. nov.

(1) *Hyphenomyia varipennis*, sp. nov.

♂. Long. corp. 6—7 mm.; al. 7 mm. Front yellow, upper half of the orbits darker, the vertical triangle dark brown, face light yellowish-grey, somewhat shining, antennae reddish-yellow, palpi and proboscis yellow. Thorax obscure yellowish in front, behind with four broad, ill-defined brown stripes, pleurae for the greater part brown, scutellum brown above with the sides yellow, metanotum and halteres yellow. Abdomen dark brown. Legs yellow, with the fore tibiae except the bases, the tips of the intermediate and hind tibiae and the greater part of the intermediate metatarsi blackish. Wings tinged with fuscous, leaving the second costal cell, the bases of the marginal and submarginal cells, a quadrate spot on either side of the anterior transverse vein, a subtriangular spot in the discal cell, an oval spot below the base of the fifth vein, one below the tip of the second, one between the tips of the third and fourth veins, and more or less of the posterior margin of the wing hyaline.

HAB. Molokai Mts., two males, 5000 ft., September 1893.

Plate III. figs. 5, side view of head, and 6, wing.

## DROSOPHILA Fallen.

This genus is represented by nearly fifty species, of which forty are here dealt with. I cannot satisfactorily refer any of these to already described forms, and therefore have regarded them all as new. Owing to the absence of any striking characters in some of the smaller species I have found it impossible, without reference to types, to decide whether they may or may not belong to certain previously-described North American or European species, with the descriptions of which they agree in many particulars. I hardly think it likely that the native species will be found elsewhere, so that the chances of the names given below being reduced to synonyms will only apply to one or two which may (though this is an unlikely supposition) have been introduced. I have left eight specimens undetermined, owing to their bad condition.

*Key to species.*

1. Wings with a dark pattern or with dark spots .....2.  
    " not so marked .....11.
2. Tibiae pale yellow, conspicuously banded with dark brown .....(1) *D. picticornis*.  
    " not banded .....3.
3. Thorax light yellow, with a single broad central stripe and three conspicuous lateral spots blackish.....(2) *D. variegata*.  
    Thorax not so coloured ..... 4.
4. Wings with costal and apical borders continuously infuscated .....5.  
    " without continuous fuscous border .....6.
5. Fourth longitudinal vein distinctly curved near its apex.....(3) *D. undulata*.  
    " " straight .....(4) *D. perkinsi*.
6. Thorax yellow, with four conspicuous black stripes; scutellum yellow with broad central dark stripe .....(5) *D. conspicua*.  
    Thorax unstriped or with less than four stripes; if four inconspicuous stripes are present the scutellum is entirely yellow .....7.
7. Third longitudinal vein with a fuscous spot opposite the posterior transverse vein .....8.  
    Third longitudinal vein without such spot .....9.
8. Infuscation in marginal cell or on middle portion of second longitudinal vein extending to a distance equalling the whole breadth of the wing...(6) *D. lanaiensis*.  
    Infuscation in marginal cell or on middle portion of second longitudinal vein only about as broad as the length of the posterior transverse vein .....(7) *D. hawaiiensis*.
9. A fuscous spot on the middle of the second longitudinal vein .....10.  
    No " " " " .....(10) *D. paucipuncta*.
10. Pleurae entirely yellow .....(8) *D. ochracea*.  
    " marked with dark brown.....(9) *D. pilimana*.
11. Apex of wings more or less infuscated .....12.  
    " " clear .....17.
12. Base of fore femora furnished on the inner side with a brush of short, stiff black hairs .....(11) *D. anomalipes*.  
    Fore femora unarmed .....13.

13. Femora black with only the bases and tips yellow.....(12) *D. nigra*.  
 „ yellow ..... 14.
14. Antennae entirely, and front for the most part, light yellow .....(13) *D. flaviceps*.  
 „ and front more or less darkened ..... 15.
15. Pleurae yellow .....(14) *D. infuscata*.  
 „ dark brown or blackish ..... 16.
16. Thorax and scutellum reddish-yellow .....(15) *D. sordidapex*.  
 „ „ blackish-cinereous, the latter with yellow apex .....(16) *D. haleakalae*.
17. Wings with second costal cell infuscated.....(17) *D. setiger*.  
 „ „ clear..... 18.
18. Wings with one or both the transverse veins clouded with fuscous ..... 19.  
 „ without any fuscous ..... 22.
19. The greater portion of the 2nd and the apices of the 3rd and 4th longitudinal veins bordered with pale fuscous .....(18) *D. humeralis*.  
 Longitudinal veins not bordered with fuscous ... 20.
20. Last section of the 4th longitudinal vein twice as long as the penultimate  
 .....(19) *D. parva*.  
 Two last sections of the 4th longitudinal vein equal in length ..... 21.
21. Thorax and scutellum reddish or brownish yellow, femora light yellow .....(20) *D. sharpi*.  
 Thorax, scutellum and fore femora blackish .....(21) *D. olaae*.
22. Intermediate and hind tibiae with dark rings ..... 23.  
 Tibiae not annulated ..... 24.
23. Fore femora swollen .....(22) *D. crassifemora*.  
 „ not swollen .....(23) *D. nasalis*.
24. Femora more or less dark ..... 25.  
 „ entirely light yellow ..... 27.
25. Arista extremely short-haired; small species .....(24) *D. mauiensis*.  
 „ long-haired; larger species ..... 26.
26. Third joint of antenna light yellow .....(25) *D. molokaiensis*.  
 „ „ dark brown .....(26) *D. sp.?*
27. Last two sections of the 4th longitudinal vein equal or subequal ..... 28.  
 Last section of the 4th longitudinal vein at least half as long again as the  
 penultimate ..... 31.
28. Thorax shining black.....(27) *D. melanosoma*.  
 „ more or less yellow ..... 29.
29. Thorax reddish-yellow with obscure blackish stripes; pleurae partly  
 blackish .....(28) *D. longiseta*.  
 Thorax yellow, unstriped; pleurae entirely yellow..... 30.
30. Front reddish-yellow; second joint of antennae entirely yellow .....(29) *D. xanthosoma*.  
 „ dark ferruginous; „ „ dark brown above, yellow  
 below.....(30) *D. cognata*.
31. Thorax entirely or in part reddish-yellow; pleurae reddish-yellow ..... 32.  
 „ and pleurae dark brown or blackish ..... 37.
32. Antennae entirely light or reddish-yellow ..... 33.  
 „ with the third joint dark ..... 35.
33. Scutellum dark brown .....(31) *D. inaequalis*.  
 „ yellow ..... 34.
34. Size  $2\frac{1}{2}$ —3 millimetres .....(32) *D. monticola*.  
 „ less than 2 millimetres .....(33) *D. pusilla*.
35. Abdomen light yellow without markings.....(33) *D. pusilla*, var.  
 „ dark reddish-brown..... 36.

36. Face with a distinct broad keel ; size larger .....(34) *D. carinata*.  
 „ without distinct keel ; size smaller .....(35) *D. obscuricornis*.  
 37. Antennae entirely yellow .....(36) *D. varifrons*.  
 „ partly or entirely dark brown .....38.  
 38. Scutellum blackish with yellow apex .....(37) *D. polita*.  
 „ reddish-brown or dark brown, unicolorous .....39.  
 39. Arista with only 3 hairs above and none below .....40.  
 „ at least 6 hairs above and 4 below .....(40) *D. plumosa*.  
 40. Front entirely blackish-brown .....(38) *D. obscurifrons*.  
 „ yellowish near the antennae, otherwise dark brown.....(39) *D. exigua*.

(1) *Drosophila picticornis*, sp. nov.

♂ ♀. Long. corp.  $3\frac{1}{2}$  mm. ; al. 4 mm. Front rather more than one-third of the width of the head, parallel-sided, dark brown, with the orbits, anterior edge, and a narrow median line lighter. Face obscure yellowish-white with the oral margin distinctly projecting and more yellowish, a distinct black spot at the insertion of the vibrissa, below which are a few smaller bristles ; proboscis black, palpi ?. Antennae blackish with the apex and lower half of the third joint whitish-yellow, which colour is sharply defined ; arista plumose above and on the apical half below. Thorax yellow, with a very broad central stripe, two spots on each side of the latter, a spot on each shoulder, a small spot in front of the base of the wings, two spots and a vertical stripe on the mesopleurae, dark brown ; scutellum yellow with a large double spot on the dorsum dark brown ; metanotum brown and shining, halteres yellow. Abdomen dark brown, with the first segment in the male and four spots on the anterior border of each of the three following segments yellow. Legs light yellow with the basal two-thirds or so of the femora, two rings on each of the tibiae and the tips of the tarsi dark brown. Wings brown, with numerous single and double hyaline spots.

HAB. Kauai, one male, Waimea Mts., 4000 ft., 1894 ; one female, Koholuamano, Kauai, April 1895.

Plate III. figs. 7, antenna, and 8, wing.

(2) *Drosophila variegata*, sp. nov.

♀. Long. corp. 4—5 mm. ; al. 4—6 mm. Front brown with the orbits and a narrow median line yellow, vertical triangle black ; face yellow. Antennae yellow, with the upper edge of the second joint brownish and the whole of the third joint black ; proboscis yellow, palpi black. Thorax light yellow, with a broad central stripe, three spots behind the shoulders, and several spots on the pleurae black, the central stripe continued over the scutellum, which is otherwise yellow ; metanotum yellow, with brown or black central stripe, halteres light yellow. Abdomen black with large

paired subquadrate yellow spots at the anterior angle of each segment, ovipositor projecting, slightly upturned and reddish-yellow. Legs yellow, the bases of the anterior and the greater part of the intermediate and hind femora dark brown or blackish. Wings hyaline, with three irregular dark brown bands running across from the costa to the posterior margin; the first commences immediately before the termination of the 1st longitudinal vein and about its middle sends out a patch which extends beyond the anterior transverse vein and joins the second band, the latter commences about the middle of the wing as a very broad band, then suddenly narrows when it crosses the 3rd vein, expands again on the 4th, runs over the apical half of the discal cell, including the posterior transverse vein but leaving a small hyaline spot near the lower exterior angle of the cell, and terminates on the posterior margin about as broad as it commenced, the third band at the apex of the wing, covering the tips of the 2nd, 3rd, and 4th veins, and along the latter sending a projection inwards which nearly meets the second band.

HAB. Molokai Mts., six females, 4000 ft., May and June 1893.—Lanai, three females, 2000 ft., December 1893, and one female, Halepaakai, 3000 ft., July 1894.

Plate III. figs. 9, ♀ individual, and 10, wing.

(3) *Drosophila undulata*, sp. nov.

♂. Long. corp. 4 mm.; al.  $4\frac{1}{2}$  mm. Front dark brown, with the orbits and a narrow median line yellow; face dark reddish-yellow with a distinct keel. Antennae obscure reddish-yellow with the upper edge of the first two joints and the whole of the third dark brown; proboscis yellow, palpi black. Thorax yellow with three black stripes running the whole length, the middle one the broadest; external to these are two stripes, the inner one of which runs from the suture backwards and the outer one from the shoulder to the base of the scutellum, being interrupted at the suture and joining the former behind; metanotum light yellow, scutellum black above, yellow at the sides, halteres yellow. Abdomen black, the fore borders of the segments obscure yellowish. Legs yellow with dark femora, the tips of all the tibiae slightly infuscated and on the two hinder pairs a trace of a dark ring near the base. Wings hyaline, with the costal cells distinctly tinged with yellow; all the veins broadly bordered with fuscous, the margins of the wing likewise darkened all round, except the costal margin as far as opposite the anterior transverse vein, up to which point the 1st and 2nd longitudinal veins are yellowish; 2nd longitudinal vein distinctly curved, and the 4th vein with the two last segments strongly waved.

HAB. Hawaii, one male, Kilauea, August 1896.

Plate III. fig. 11, wing.



(4) *Drosophila perkinsi*, sp. nov.

♂ ♀. Long. corp.  $2\frac{1}{2}$ —3 mm. ; al.  $3$ — $3\frac{1}{2}$  mm. Front yellowish-brown, orbits and vertical triangle lighter ; face yellowish-grey with a distinct keel. Antennae yellow with the third joint dark brown ; proboscis yellow, palpi black. Thorax yellowish-cinereous becoming reddish-brown behind, with three narrow central brown lines, the middle one reaching the anterior edge, the others abbreviated in front and more or less interrupted at the suture ; lateral edge and a broad band on the pleurae dark brown, pleurae otherwise yellowish ; metanotum yellowish- or reddish-brown, scutellum dark brown above, yellow at the sides, halteres yellow. Abdomen dark brown, the posterior edges of the segments yellowish-cinereous. Legs yellowish with dark femora, two hind pairs of tibiae with very slight traces of brown rings near the base and tip, and the tarsi, especially the front pair, more or less darkened. Wings hyaline with a broad fuscous border beginning just beyond the termination of the 1st longitudinal vein and running round as far as the anal cell, in the three posterior cells the inner margin of this dark edging is irregularly sinuate, the two transverse veins conspicuously blotched with fuscous and a large fuscous spot in the 1st posterior cell just over the end of the discal cell ; 2nd longitudinal vein very slightly curved and the 4th quite straight.

HAB. Hawaii, two males, Kilauea, August 1896.—Oahu, one female, Waianae, coast, January 1897.

Plate III. fig. 12, wing.

(5) *Drosophila conspicua*, sp. nov. .

♀. Long. corp. 5 mm. ; al. 6 mm. Front yellowish-brown, orbits and vertical triangle lighter, space between the ocelli black, occiput with three black stripes ; face light yellowish-grey, without keel, cheeks, lower part of occiput, proboscis and palpi light yellow. Antennae brown, somewhat yellowish beneath. Thorax yellow with four black lines, pleurae yellow, scutellum dark brown with only the lateral angles yellow, metanotum yellow with faint brown central stripe, halteres yellow. Abdomen shining black, with four pairs of yellow subquadrate spots situated at the anterior angles of the first four segments, those of the first segment hardly distinct from the anterior border which is also yellowish. Legs yellow, tip of fore and intermediate tibiae and base and tip of the posterior tibiae slightly infuscated, the last joint of all the tarsi also dark. Wings hyaline, marginal cell infuscated for the greater part of its length, the infuscation extending over the 2nd longitudinal vein, but leaving a spot at the termination of the 1st longitudinal vein and another before

the tip of the 2nd vein hyaline, apex of costal cell, a spot on the third vein opposite the posterior transverse vein and a large spot below this on the 4th vein fuscous, both the transverse and the tips of the 2nd to the 5th longitudinal veins broadly infuscated, the infuscation on the 4th extending twice as far inwards as that on the 3rd; posterior transverse vein angularly bent near its middle.

HAB. Hawaii, one female, Olaa, November 1896.

Plate III. fig. 13, wing.

(6) *Drosophila lanaiensis*, sp. nov.

♀. Long. corp.  $3\frac{1}{2}$ —5 mm.; al.  $4$ — $5\frac{1}{2}$  mm. Front reddish-yellow with the orbits and vertical triangle lighter; face shining yellowish, not keeled; proboscis and palpi brown, lighter at the base; antennae obscure yellowish, with the upper edge of the first two and the whole of the third joint darker, sometimes dark brown. Thorax yellow with three brown stripes, the middle one sometimes indistinct, and between this and the lateral stripes on each side a faint trace of a very narrow dark line; pleurae yellow with a dark spot on the mesopleura; scutellum, metanotum, and halteres yellow. Abdomen as in *D. conspicua*, but the yellow spots not so distinct and the ovipositor longer and more slender. Legs yellow, terminal joint of the tarsi dark. Wings hyaline, and marked as in *D. conspicua* but more faintly, the posterior transverse vein quite straight.

HAB. Lanai, five females, 2000 ft., December 1893.

(7) *Drosophila hawaiiensis*, sp. nov.

♂ ♀. Long. corp. 3—4 mm.; al.  $3\frac{1}{2}$ —5 mm. Front varying from reddish-yellow to dark brown, orbits and vertical triangle lighter and usually cinereous, face yellowish-cinereous, proboscis and palpi reddish-yellow to reddish-brown, antennae dark brown. Thorax yellowish-cinereous, unstriped or with two obscure brown stripes, pleurae reddish-yellow to dark brown, mesopleurae blackish, scutellum and halteres yellow, metanotum reddish-brown to blackish. Abdomen blackish with more or less distinct yellow spots at the anterior angles of the segments, ovipositor distinct. Legs yellow. Wings hyaline, a spot over the 1st longitudinal vein, a transverse band crossing from the middle of the costa over the posterior transverse vein to near the tip of the 5th longitudinal vein, more or less broken up into spots or blotches on the veins, and the tips of the 2nd, 3rd, and 4th veins fuscous; posterior transverse vein slightly convex.

HAB. Hawaii, nine males and two females, Kona, 3500—4000 ft., July and September 1892; one female, Kilauea, August 1896.

A male from Kona, Hawaii, 4000 ft., September 1892, another from Kaumana, Hilo, 2000 ft., January 1896 (in the same island), and a female from Wainae Mts., Oahu, April 1892, differ in having the pleurae lighter, the thorax reddish-yellow rather than cinereous, the fuscous markings on the wings fainter, and the central band only commencing on the 2nd longitudinal vein and being quite broken up into spots. *D. hawaiiensis* appears, however, to be so variable, that at present I shall regard these three specimens as representing a form of that species.

Plate III. fig. 14, wing.

(8) *Drosophila ochracea*, sp. nov.

♀. Long. corp.  $3\frac{1}{2}$ —4 mm.; al. 4— $4\frac{1}{2}$  mm. Front yellow, sometimes a little brownish; face, proboscis, and palpi yellow; antennae obscure yellowish with the third joint darker and sometimes quite brown. Thorax, including the pleurae, scutellum, and metanotum, ochraceous-yellow, without any dark markings, halteres yellow. Abdomen dark brown or blackish, with large quadrate yellow spots at the anterior angles of the segments; sometimes these spots are so large that the abdomen would be better described as yellow with a dorsal line and the hind borders of the segments dark brown. Legs yellow. Wings hyaline with the following fuscous markings: a spot on the 1st longitudinal vein, one on the middle and another at the tip of the second vein, the former distinctly nearer the base of the wing than the posterior cross-vein, a small roundish spot at the tip of the 3rd and an elongated one at the tip of the 4th vein, both transverse veins broadly infuscated, the infuscation on the posterior one being enlarged at each end into a more or less distinct round spot.

HAB. Hawaii, five females, Oloo, July 1895.

(9) *Drosophila pilimana*, sp. nov.

♂ ♀. Long. corp.  $3\frac{1}{2}$ —4 mm.; al. 4—5 mm. Front yellowish or reddish-brown, orbits and vertical triangle lighter; face cinereous or yellowish-cinereous; proboscis yellowish-brown, palpi yellow; antennae reddish-yellow to brownish, the basal joints somewhat lighter. Thorax yellowish-cinereous, in the male more reddish-yellow with obscure brown markings, pleurae yellow with brown markings, of which two brown streaks on the mesopleurae are the most conspicuous, scutellum yellow with the dorsum more or less dark brown, metanotum brown, halteres yellow. Abdomen as in *D. ochracea*. Legs yellow, in the male the fore tibiae are furnished with long fine hairs on the outer surface. Wings as in *D. ochracea*, but the spots, especially that on the middle of the 2nd longitudinal vein, smaller and less distinct, the anterior transverse vein hardly or not at all infuscated.

HAB. Oahu, one male and three females on trunks of forest trees, Waianae Mts., April 1892.—Kauai, one male, Waimea Mts., 4000 ft., May 1894; one female, Koholuanamo, April 1895.

A specimen much paler in all its parts and with the spots on the wings very faint but similarly situated, was obtained in the Mts. of Molokai (4000 ft.) in May 1893, and cannot well be separated from the present species.

(10) *Drosophila paucipuncta*, sp. nov.

♀. Long. corp.  $3\frac{1}{2}$ —4 mm.; al. 4— $4\frac{1}{2}$  mm. Very similar to *D. pilimana*, but differs in the total absence of the fuscous spot on the middle of the 2nd longitudinal vein. The front is darker, the thorax is yellowish-brown becoming much darker behind owing to an obscure blackish patch in front of the scutellum; the metanotum, on the other hand, is lighter; abdomen with yellow spots smaller.

HAB. Hawaii, three females, Olaa, July 1895.

(11) *Drosophila anomalipes*, sp. nov.

♂. Long. corp.  $4\frac{1}{2}$  mm.; al.  $5\frac{1}{2}$  mm. Front dark reddish-brown with the orbits reddish-yellow, face light cinereous, proboscis reddish-yellow, palpi dark brown; antennae black. Thorax reddish-yellow with an obscure, broadish, central brown stripe, pleurae reddish-yellow, scutellum, metanotum, and halteres reddish-yellow. Abdomen dark reddish-yellow, with a dorsal central line and the hind margins of the segments blackish. Legs yellow, the fore pair of peculiar structure as follow: coxae nearly as long as the femora and furnished at the tip with numerous black curved bristles, femora furnished near the base on the inner side with a brush of rather short, stiff, black bristles, tibiae swollen on the inner side of the tip into a little black knob, metatarsus somewhat swollen. Wings hyaline, with a fuscous spot at the apex which includes the tips of the 2nd, 3rd, and 4th veins, apex of the costal cell and posterior transverse vein also infuscated, the latter quite straight and only about half its length from the border of the wing.

HAB. Kauai, two males of this distinct and peculiar species, 4000 ft., July 1896.

Plate III. figs. 15, fore leg of ♂, and 15a, apex of tibia of same, more highly magnified.

(12) *Drosophila nigra*, sp. nov.

♀. Long. corp. 6 mm.; al. 6 mm. Front blackish with a transverse reddish-yellow band immediately behind the antennae, orbits and vertical triangle shining black; face dark cinereous, proboscis yellow, palpi black; antennae black. Thorax,

including pleurae, scutellum, and metanotum, shining black, halteres reddish-yellow. Abdomen shining black, unicolorous. Legs yellow, with the fore coxae dull blackish and all the femora shining black. Wings tinged with light brown, with the apex as far as half way to the end of the discal cell much darker and the posterior transverse vein infuscated.

HAB. Maui, a single imperfect female, Haleakala, 5000 ft., May 1896.

(13) *Drosophila flaviceps*, sp. nov.

♂. Long. corp.  $2\frac{1}{4}$  mm.; al.  $2\frac{1}{2}$  mm. Front light yellow, orbits and vertical triangle a little darker, face greyish-yellow, proboscis, palpi, and antennae light yellow. Thorax dark cinereous, somewhat shining, pleurae blackish-brown, shining, scutellum dark brown with a yellowish tinge, metanotum reddish-brown, halteres yellow. Abdomen shining black. Legs light yellow. Wings rather narrow, hyaline, with the apical half slightly infuscated, last two sections of the 4th vein equal, posterior transverse vein about twice its length from the border of the wing.

HAB. Hawaii, one male, Kona, 3500 ft., June 1892.

(14) *Drosophila infuscata*, sp. nov.

♂. Long. corp.  $2\frac{1}{2}$  mm.; al.  $2\frac{3}{4}$  mm. Front dark reddish-brown, face yellowish-grey, proboscis and palpi yellow; antennae obscure reddish-yellow, the upper edges of all the joints somewhat darker. Thorax, including the pleurae, scutellum, and metanotum, reddish-yellow, halteres yellow with somewhat infuscated knob. Abdomen shining dark brown, the first and the base of the second segments yellowish. Legs light yellow. Wings hyaline, the apical and upper half infuscated, the dark portion bounded, but not sharply defined, by a line drawn obliquely from the middle of the costa to just below the tip of the 4th vein; last two sections of the 4th vein equal; posterior transverse vein broadly infuscated, quite straight and distant about its own length from the posterior margin of the wing.

HAB. Hawaii, one male, Oloa, December 1896.

(15) *Drosophila sordidapex*, sp. nov.

♂. Long. corp. 3 mm.; al. 3 mm. Front reddish-brown, upper part of orbits and space between the ocelli blackish; face dark brown, proboscis and palpi yellow, antennae obscure reddish-yellow with the third joint dark brown. Thorax, halteres, and abdomen as in *D. infuscata*, but the pleurae dark brown. Legs light yellow.

Wings hyaline with dark apex, the dark portion including only the tips of the 2nd and 3rd veins and that of the 4th slightly, posterior transverse vein not infuscated, quite straight, last section of the 4th vein distinctly longer than the penultimate.

HAB. Hawaii, one male, Olaa, July 1895.

(16) *Drosophila haleakalae*, sp. nov.

♂. Long. corp. 3 mm. ; al.  $3\frac{1}{2}$  mm. Front, including orbits, light yellow in front, blackish behind, posterior part of orbits and vertical triangle dark and shining; face, proboscis, and palpi yellow; antennae yellow with the upper edge of the two last joints dark brown. Thorax, including pleurae and metanotum, shining blackish-cinereous, shoulders a little reddish, scutellum blackish with yellow apex, halteres yellow. Abdomen shining black. Legs yellow. Wings hyaline, with the apex and the posterior transverse vein slightly infuscated, the latter quite straight and distant a little more than its length from the posterior margin of the wing, last section of the 4th vein longer than the penultimate.

HAB. Maui, one male, Haleakala, 6000 ft., March 1894.

(17) *Drosophila setiger*, sp. nov.

♂. Long. corp.  $2\frac{1}{2}$  mm. ; al.  $2\frac{1}{2}$  mm. Front wholly shining black, face glistening whitish, proboscis obscure yellowish, palpi?; antennae black. Thorax, including pleurae, scutellum, and metanotum, shining black, halteres with yellow stalk and blackish knob. Abdomen shining black. Legs yellow, fore tibiae with two or three long fine bristles, fore metatarsus furnished at its base with two very long and conspicuous bristles. Wings hyaline with the costal cells dark fuscous and a slight fuscous streak along the costa; posterior transverse vein straight, one and a half times its length from the border, last section of the 4th vein half as long again as the penultimate.

HAB. Molokai, one male, Forest above Pelekunu, 24th August, 1893.

Three females from Molokai Mts., 4000—5000 ft., June to September 1893, are so like the above species that I hesitate to describe them as distinct. They are much larger, however, the body and wings both measuring  $3\frac{1}{2}$  mm.; the face is quite black, with the triangular central portion (i.e. excluding the cheeks) highly polished; legs yellow, without conspicuous hairs.

Plate III. fig. 16, fore leg of ♂.

(18) *Drosophila humeralis*, sp. nov.

♂ ♀. Long. corp. 3 mm. ; al.  $3\frac{1}{2}$  mm. Front dark brown, in the female lighter in front; face obscure brownish, with a distinct keel; proboscis? yellowish-brown;

antennae dark brown. Thorax blackish-brown with two thin lines on the dorsum reddish-yellow, shoulders light yellow, a stripe of the same colour proceeding from thence to the root of the wings, edges of mesopleurae yellowish, the pleurae otherwise dark brown, scutellum dark brown above, yellow on the sides, metanotum blackish, halteres reddish-yellow. Abdomen blackish with the hind borders of the segments a little lighter. Legs yellow with dark brown femora, fore tarsi in the male fringed with rather long, fine hairs. Wings hyaline, the greater part of the second vein, the tips of the 3rd and 4th and the posterior transverse vein broadly bordered with fuscous.

HAB. Kauai, one male and one female, 4000 ft., July 1896.

(19) *Drosophila parva*, sp. nov.

♂. Long. corp.  $1\frac{1}{2}$  mm.; al.  $1\frac{1}{2}$  mm. Front black, reddish-yellow immediately behind the antennae, the orbits and vertical triangle dark cinereous; face blackish with a distinct keel; antennae very short, reddish-yellow with the upper edges of the joints somewhat darkened. Thorax dark cinereous, in the best-preserved specimen are traces of three darker lines on the dorsum, scutellum and pleurae dark cinereous, metanotum blackish, halteres pale yellow. Abdomen blackish-brown. Legs with the fore coxae light yellow, the femora more or less brown, the tibiae yellow, with slight traces of darker rings, the tarsi yellow with the terminal joint darkened. Wings hyaline with both the transverse veins conspicuously infuscated, 2nd longitudinal vein distinctly curved forwards at the tip, 3rd and 4th veins parallel, the last section of the latter twice as long as the penultimate.

HAB. Hawaii, Kilauea, two males, August 1896; one male, Kona, 4000 ft., August 1892.

(20) *Drosophila sharpi*, sp. nov.

♂, ♀. Long. corp. 4—5 mm.; al.  $4\frac{1}{2}$ —6 mm. Front reddish-brown with the orbits and vertical triangle shining dark brown; face yellowish to reddish-brown, proboscis and palpi reddish-yellow; antennae reddish-brown. Thorax reddish-yellow to reddish-brown, scutellum reddish-yellow, sometimes with a blackish spot near the base, pleurae, metanotum, and halteres reddish-yellow. Abdomen yellow with a dorsal median line and the hinder halves of the segments blackish. Legs light- to reddish-yellow. Wings tinged with light brown, posterior transverse vein slightly infuscated, quite straight, two last sections of the 4th vein equal in length.

HAB. Kauai, Koholuamano, two males and three females, April 1895.

(21) *Drosophila olaae*, sp. nov.

♀. Long. corp.  $4\frac{1}{2}$  mm.; al.  $4\frac{1}{2}$  mm. Front dark brown, hinder part of orbits and vertical triangle blackish; face blackish, with a distinct keel, eye-margins and chin light cinereous; antennae dark brown, second joint for the greater part yellowish. Thorax, including pleurae, scutellum, and metanotum, blackish, halteres reddish-yellow. Abdomen blackish, the segments very narrowly edged with reddish-yellow. Legs with the fore coxae and all the femora blackish-brown, tibiae yellowish, intermediate and hind pairs infuscated at the tip, knees light yellow, tarsi obscure yellowish. Wings slightly tinged with yellowish-brown, posterior transverse vein straight and broadly infuscated, rather less than its length from the border, last two sections of the 4th vein equal.

HAB. Hawaii, Olaa, one female, December 1896.

(22) *Drosophila crassifemur*, sp. nov.

♂. Long. corp.  $3\frac{1}{2}$  mm.; al. 4 mm. Front dark brown, an orange-coloured transverse spot behind each antenna; face light yellowish with a very prominent light yellow rounded central keel; antennae dark brown, base of third and apex of second joints reddish-yellow. Thorax orange-yellow, with five rather indistinct brown stripes, humeri light yellow, pleurae reddish-yellow blotched with dark brown, scutellum blackish-brown with the sides yellow, metanotum reddish-yellow, halteres light yellow. Abdomen dark brown, with the segments indistinctly edged with yellowish. Fore legs with the coxae reddish-yellow, the femora shining dark brown, short and very much swollen, with some long black hairs on their upper and outer surfaces, the tibiae equal in length to the femora and yellowish, the tarsi yellowish with the apical joints somewhat darker; intermediate and hind legs with the femora shining dark brown but not swollen, the tibiae yellow with two dark rings, and the tarsi slender and yellowish. Wings slightly greyish tinged but none of the veins clouded.

HAB. Maui, one male of this distinct and peculiar species from Haleakala, 5000 ft., October 1896.

Plate III. fig. 17, fore leg of ♂.

(23) *Drosophila nasalis*, sp. nov.

♂. Long. corp.  $4\frac{1}{4}$  mm.; al. 4 mm. Front dark brown, with the anterior edge, the orbits, vertical triangle, and a central line lighter and more or less yellowish; face brownish-yellow with a very prominent yellow, nose-like keel; proboscis yellow,



palpi black; antennae dark brown with the basal joints for the greater part reddish-yellow. Thorax yellow with five brown stripes, pleurae dark brown, the mesopleurae edged below with yellowish, scutellum dark brown with the sides and a basal indistinct spot yellowish, metanotum shining brownish with a slight covering of grey tomentum, halteres light yellow. Abdomen dark brown, with the edges of the segments reddish-yellow. Legs with the fore coxae and all the femora shining blackish-brown, tibiae yellowish, the fore pair with indistinct, the other pairs with two distinct brown rings, tarsi obscure yellowish. Wings uniformly tinged with light brown.

HAB. Molokai Mts., one male, September 17th, 1893, and one male from woods above Pelekunu, August 27th, 1893.

Plate III. fig. 18, head of ♂.

(24) *Drosophila mawiensis*, sp. nov.

♂, ♀. Long. corp. 2 mm.; al. 2 mm. Front dark brown; face brown with a thin sharp keel; proboscis and palpi yellowish; antennae very short, yellowish or reddish-brown, beneath lighter, arista straight with a few extremely short hairs on the upper and on the apical half of the under surfaces. Thorax obscure blackish or dark brown, rather shining, pleurae, scutellum, and metanotum blackish, halteres light yellow. Abdomen blackish, becoming much lighter, almost yellow, towards the tip. Legs with the femora shining blackish, knees and tibiae obscure reddish-yellow, the hind tibiae a little darker towards the tip, tarsi yellowish. Wings hyaline.

HAB. Maui, Iao Valley, one male and three females, September 1896. This small and distinct species may be easily recognised by the extremely short hairs on the arista. What I take to be the male has a long pointed organ (? penis) beneath the abdomen, slightly bent at the tip.

(25) *Drosophila molokaiensis*, sp. nov.

♂. Long. corp.  $3\frac{1}{2}$  mm.; al. 4 mm. Front blackish behind, reddish-brown in front, orbits and vertical triangle shining; face grey, without distinct keel; proboscis dark brown, palpi yellowish; antennae, including the third joint, reddish-yellow, the second joint darker above. Thorax with scutellum dark brown, shining; pleurae and metanotum blackish, halteres pale yellow. Abdomen dark brown. Legs with all the femora shining dark brown, the tibiae yellowish, the intermediate pair somewhat darker, all the tarsi yellow with the two apical joints black. Wings slightly tinged with yellowish-brown, posterior transverse vein straight, last two sections of the fourth vein equal.

HAB. Molokai Mts., one male, 4500 ft., September 1893.

(26) *Drosophila* sp.

Two specimens from Koholuamano, Kauai, April 1895, differ from the last species in being smaller, having the antennae dark brown and the tarsi entirely yellow. They are, however, in bad condition, and hence their description is deferred until more material is obtained.

(27) *Drosophila melanosoma*, sp. nov.

♀. Long. corp.  $3\frac{1}{2}$  mm. ; al.  $3\frac{1}{2}$  mm. Front dark reddish-brown in front, blackish behind ; face brownish cinereous with a slight keel, proboscis reddish-yellow, palpi dark brown ; antennae obscure brownish, the basal joints darker than the third. Thorax, including pleurae, metanotum, and scutellum, shining black, the latter with a reddish apex, halteres pale yellow. Abdomen shining black. Legs, including the fore coxae, light yellow. Wings very slightly tinged with yellowish-brown, third and fourth veins rather wide apart in the middle and distinctly convergent towards the apex, posterior transverse vein slightly oblique.

HAB. Kauai, Mts. Waimea, one female, 4000 ft., 1894.

(28) *Drosophila longiseta*, sp. nov.

♂, ♀. Long. corp. 6 mm. ; al.  $6\frac{1}{2}$  mm. Front dark brown ; face reddish-yellow to yellowish-grey, distinctly keeled ; proboscis and palpi reddish-yellow ; antennae large, reddish-brown, arista very long and rather tortuous, plumose above for its whole length and below on its apical half. Thorax brownish-yellow, with three obscure blackish stripes, pleurae reddish-yellow, a large patch on the mesopleura and a small spot beneath the root of the wing blackish, scutellum dark brown, reddish at the sides, metanotum reddish-yellow, halteres yellow. Abdomen blackish with some indistinct yellowish spots at the basal angles of each segment. Legs long and slender, in the female the fore tarsi longer than the tibiae, the fore femora in both sexes armed with long spine-like hairs which are arranged in two rows. Wings yellowish-hyaline.

HAB. Molokai Mts., one male, 4000 ft., June 13th, 1893 ; one female, 4500 ft., September 13th, 1893.

Plate III. fig. 19, antenna.

(29) *Drosophila xanthosoma*, sp. nov.

♂. Long. corp. 3 mm. ; al.  $3\frac{1}{2}$  mm. Front, face, palpi, and proboscis yellow ; antennae yellow, the third joint somewhat brownish. Thorax, pleurae, metanotum, scutellum, and halteres reddish-yellow. Abdomen yellow, with the hind margins of

the segments more or less brown. Legs yellow, the last joint of the tarsi dark. Wings yellowish-hyaline, third and fourth veins parallel, last two sections of the latter equal, posterior transverse vein slightly convex.

HAB. Hawaii, Olaa, one male, December 1896.

Three specimens with a much darker abdomen and some traces of brown marks on the thorax, from Kona, Hawaii, 2000 ft., June 1892, are scarcely distinct from the species here described.

(30) *Drosophila cognata*, sp. nov.

♀. Long. corp. 4 mm.; al.  $4\frac{1}{2}$  mm. Very similar to *D. xanthosoma*, but larger, the front darker; ferruginous rather than yellow, with the orbits and vertical triangle shining, antennae brown, with the second joint reddish-yellow beneath. Thorax darker, brownish-yellow; abdomen dark brown, with the basal angles of the segments yellow; legs with the last joint of the tarsi yellow; wings more decidedly tinged with yellow, third and fourth veins slightly convergent towards the apex, posterior transverse vein straight.

HAB. Molokai Mts., two females, 4000 ft., May 1893.—Hawaii, Olaa, one female, December 1896.

(31) *Drosophila inaequalis*, sp. nov.

♀. Long. corp. 2 mm.; al.  $2\frac{1}{2}$  mm. Front bright reddish-yellow with the vertical triangle brown; face and cheeks yellow, proboscis reddish-yellow, palpi yellow with black tips; antennae entirely reddish-yellow, arista with only about two hairs on the upper side and one below. Thorax reddish-yellow with three broadish brown stripes which coalesce behind, pleurae obscure reddish-yellow, scutellum dark brown, metanotum shining blackish, halteres light yellow. Abdomen dark brown, with obscure yellowish spots at the basal angles of the segments. Legs yellow, the tarsi slightly darker towards their tips. Wings yellowish-hyaline, 2nd longitudinal vein distinctly curved forwards near the apex, so that the distance between its termination and that of the 3rd vein is twice that between the terminations of the 3rd and 4th veins, the latter parallel, the last section of the 4th vein half as long again as the penultimate, posterior transverse vein distinctly convex.

HAB. Hawaii, Kona, two females, 4000 ft., August 1892.

(32) *Drosophila monticola*, sp. nov.

♂, ♀. Long. corp.  $2\frac{1}{2}$ —3 mm.; al. 3— $3\frac{1}{2}$  mm. Front brownish-yellow, a transverse band behind the antennae bright yellow; face yellow, proboscis and antennae

reddish-yellow, palpi yellow with black apical half. Thorax, including the pleurae, metanotum, and scutellum, yellow or reddish-yellow, a small streak behind each shoulder and two faint stripes on the dorsum brown, halteres yellow. Abdomen yellow, with the hind border of each segment dark brown, but interrupted in the middle. Legs yellow, the apices of the tarsi dark brown or blackish. Wings hyaline, 2nd longitudinal vein very little curved at the apex, 3rd and 4th parallel, last section of the latter half as long again as the penultimate, posterior transverse vein straight.

HAB. Hawaii, Kona, Mt. Hualalai, one male and one female, 8000 ft., August 1892.

(33) *Drosophila pusilla*, sp. nov.

♂, ♀. Long. corp.  $1-1\frac{1}{2}$  mm.; al.  $1\frac{1}{2}-1\frac{3}{4}$  mm. Front yellow, orbits very pale; face pale yellow; proboscis yellow, palpi yellow with somewhat darkened tips, antennae entirely yellow, arista with only three hairs above. Thorax, including pleurae, scutellum, and metanotum, yellow, halteres yellow. Abdomen yellow or yellowish-brown, genitalia black. Legs yellow, tips of tarsi slightly darkened. Wings hyaline, distance between terminations of 2nd and 3rd veins twice that between those of the 3rd and 4th, the latter parallel, last section of the 4th vein about twice as long as the penultimate, posterior transverse vein straight.

HAB. Molokai, three specimens of this minute species, of which I believe two are males, were obtained on the mountains, 3000 ft., in September 1893.—Maui, a specimen from Haleakala, taken at a height of over 5000 ft. in October 1896, only differs in having the third joint of the antenna brown instead of yellow. At present I shall regard it merely as a variety.

(34) *Drosophila carinata*, sp. nov.

♀. Long. corp.  $2\frac{1}{2}$  mm.; al.  $2\frac{3}{4}$  mm. Front dark brown with the orbits and vertical triangle cinereous; face yellowish-cinereous with a very conspicuous keel which is narrow between the antennae but becomes much broader towards the oral margin, so that in front view it appears triangular; proboscis yellowish-brown, palpi yellow; antennae reddish-yellow with the second joint above and the third joint entirely brown. Thorax with pleurae obscure brownish-yellow, with traces of three lighter stripes, the pubescence rather coarse, scutellum yellowish-brown with lighter margin, metanotum obscure brownish, halteres reddish-yellow. Abdomen dark brown, a little lighter towards the base, the hind margins of the segments blackish, ovipositor reddish-yellow. Legs yellow. Wings hyaline, rather broad, a dark spot at the termination of the first longitudinal vein, second vein straight, third distinctly curved in the middle so as to

approach the second, beyond the middle running parallel with the fourth, last section of the latter fully twice as long as the penultimate, transverse vein quite straight.

HAB. Hawaii, Kona, one female, 4000 ft., August 1892; Olaa, one female, July 1895.

Plate III. fig. 20, head of ♀.

(35) *Drosophila obscuricornis*, sp. nov.

♂ ♀. Long. corp.  $1\frac{1}{2}$  mm.; al.  $1\frac{3}{4}$ —2 mm. Front black with the orbits and vertical triangle shining and a little lighter; face dark brown or blackish, without distinct keel, proboscis yellowish, palpi dark brown; antennae entirely blackish-brown. Thorax blackish-brown, pleurae reddish-yellow (in one of the specimens dark brown), scutellum and metanotum dark brown, the latter shining, halteres yellowish. Abdomen dull uniform blackish-brown, the terminal segment shining. Legs light pitchy-brown. Wings greyish hyaline, no dark spot at the termination of the first vein, terminations of the second and third veins twice as far apart as those of the third and fourth, third and fourth veins parallel, last section of the fourth vein about twice as long as the penultimate, posterior transverse vein straight.

HAB. Molokai Mts., one male and two females, 5000 ft., August and September 1893.

(36) *Drosophila varifrons*, sp. nov.

♂. Long. corp.  $1\frac{3}{4}$  mm.; al.  $2\frac{1}{4}$  mm. Front light yellow with the orbits and vertical triangle black and polished; face, chin, proboscis and palpi light yellow; antennae entirely reddish-yellow, the arista black with four or five hairs above and about three below. Thorax shining black, with a slight olivaceous tinge, pleurae, scutellum and metanotum shining black, halteres light yellow. Abdomen black with the last segment highly polished. Legs yellow, the terminal joints of the tarsi darker. Wings hyaline, terminations of the second and third veins twice as far apart as those of the third and fourth, third and fourth veins parallel, last section of the latter about half as long again as the penultimate, posterior transverse vein straight.

HAB. Oahu, Kaala Mts., on wet rocks, one male, 2000 ft., March 1893.

(37) *Drosophila polita*, sp. nov.

♀. Long. corp.  $3\frac{1}{4}$  mm.; al.  $3\frac{1}{2}$  mm. Front shining black behind, reddish-yellow in front; face yellowish-cinereous, shining; proboscis yellow, palpi yellow with black tips; antennae reddish-yellow with the third joint dark brown. Thorax with dorsum,

pleurae and metanotum shining black, scutellum blackish, not quite so highly polished and with yellow apex, halteres reddish fuscous. Abdomen black with the apical segment and lateral margins shining. Legs yellow. Wings hyaline, last section of the fourth vein about half as long again as the penultimate, posterior transverse vein straight.

HAB. Lanai, one female, 2000 ft., December 1893.

From this species I can hardly separate a specimen from Kona, Hawaii, taken at a height of 5000 ft. in July 1892 and another from Olaa in the same island obtained in July 1895. They are both smaller than the type, the former having the abdomen shining throughout and the halteres yellow, the latter also with yellow halteres and the thorax and pleurae somewhat lighter. If distinct their description must be deferred until fuller material is obtained.

(38) *Drosophila obscurifrons*, sp. nov.

♂. Long. corp. 2—2½ mm.; al. 2½ mm. Front black, the orbits, the vertical triangle and a central line a little lighter; face blackish, with a slight keel; proboscis and palpi yellowish; antennae dark brown, arista with three hairs above but none below, apex of second joint and base of third sometimes lighter. Thorax blackish-brown, pleurae olivaceous or dark cinereous, scutellum and metanotum blackish-brown, the latter shining, halteres light yellow. Abdomen blackish, the last segment shining. Legs yellowish, the femora and the tips of the tarsi a little darker. Wings hyaline, last section of the fourth vein about half as long again as the penultimate, posterior transverse veins straight.

HAB. Molokai Mts., three males, 5000 ft., August and September 1893.

(39) *Drosophila exigua*, sp. nov.

♂ ♀. Long. corp. 2 mm.; al. 2 mm. Very similar to *D. obscurifrons*, but differs as follows: the front distinctly reddish-yellow near the antennae, the latter much lighter, with the second joint reddish-yellow or only darkened above, the legs lighter yellow with the femora pale or only slightly darker. Wings with the last section of the fourth vein about twice as long as the penultimate.

HAB. Hawaii, Kilauea, one male, July 1896; Kona, one male and one female, 4000 ft., July 1892.

(40) *Drosophila plumosa*, sp. nov.

♂ ♀. Long. corp. 2—2½ mm.; al. 2½—3 mm. Similar to *D. obscurifrons*, but the front lighter, sometimes obscure reddish-yellow, arista of the antennae with at least six hairs above and three below, thorax lighter, olive-brown, halteres paler, almost creamy,

legs lighter, with yellow femora, wings with the last section of the fourth vein about twice as long as the penultimate. From *D. exigua* this species differs in the number of hairs on the arista and in the colour of the halteres.

HAB. Hawaii, Kona, one male, 2000 ft., September 1892; Olaa, one male and one female, July 1895.

Fam. ASTEIIDAE.

ASTEIA Meigen.

The three species described below have only two bristles on the scutellum, thus disagreeing with Schiner's diagnosis of this genus (*Fauna Austriaca*, II. p. 280). Moreover the arista of the antennae is of a different nature to that of the European species. The neuration is so distinctive, however, that I have little hesitation in placing them here for the present, although ultimately they may serve as types of a new genus.

(1) *Asteia hawaiiensis*, sp. nov.

♂ ♀. Long. corp.  $2\frac{1}{2}$ —3 mm.; al.  $3$ — $3\frac{1}{2}$  mm. Front shining black, face greyish and shining, proboscis and palpi reddish-yellow; antennae blackish-brown, with the under side of the second and third joints whitish-yellow, arista in the form of a zigzag with a short hair at each bend. Thorax shining black; pleurae also shining black, but with a lemon-yellow stripe running from the base of the fore coxae to the root of the wings, scutellum shining black with a light yellow spot at the apex, halteres blackish. Abdomen quite black above, with the apical segments more shining; venter and sides yellow. Legs yellow, with the apices of the fore femora, the whole of the fore tibiae and tarsi blackish-brown and the intermediate and hind femora and tips of the tarsi more or less infuscated. Wings slightly tinged with yellowish-brown.

HAB. Hawaii, Kona, four males and one female, 3500—4000 ft., June—July 1892; Olaa, one female, November 1896.

(2) *Asteia apicalis*, sp. nov.

♂. Long. corp.  $2$ — $2\frac{1}{2}$  mm.; al.  $2\frac{1}{2}$ — $3\frac{1}{2}$  mm. Similar to *A. hawaiiensis*, but differs as follows: arista of antennae nearly straight, with the hairs less erect, so that they are difficult to see except under a high power; yellow spot on the scutellum much larger and in some specimens almost extending to the base and thus dividing the black into two portions; halteres lighter and somewhat yellowish; legs yellowish with the apical joints of the tarsi blackish, femora only a little infuscated towards the apex; wings quite clear.

HAB. Hawaii, Kilauea, four males, July 1895.

(3) *Asteia*, sp.

The third species belonging to this genus is represented by a single specimen beaten from trees, at a height of 3000 ft. in the Waianae Mts., Oahu, in April 1892. It differs from the other two species inhabiting these islands in having entirely black antennae, blackish pleurae and reddish-yellow legs. The arista appears to be quite bare.

## Fam. AGROMYZIDAE.

## AGROMYZA Fallen.

(1) *Agromyza*, sp.

Two specimens belonging to this genus were obtained by Mr Perkins. One was beaten from trees, at a height of 3000 ft., in the Waianae Mts., Oahu, in April 1892, and the other is from Kona, Hawaii, and was obtained at a height of 4000 ft. in September of the same year. Both specimens agree in most respects with *A. pictella* Thoms., described from California, except that the abdomen is entirely black. In the present state of our knowledge of this genus I think it wiser to defer the description of this species, rather than add another to the long list of those already named, which must include a great many synonyms.

## OPHTHALMOMYIA Williston.

(1) *Ophthalmomyia lacteipennis* Loew.

*Lobioptera lacteipennis* Loew., Dipt. Amer. Sept. Centur. vi. no. 97 (Berl. Ent. Zeitschr. ix. 1865, p. 185)—Cuba.

*Ophthalmomyia lacteipennis* Williston, Tr. Ent. Soc. Lond. 1896, p. 427, pl. xiv. f. 154.

HAB. Hawaii, Kona, five males, 4000 ft., August and September 1892. The last segment of the abdomen is furnished on each side with a row of regular, equidistant bristles, which stand out at right angles to the margin; hence, as the abdomen is pointed they are directed backwards and present a rather remarkable appearance, which does not hitherto appear to have been noticed. I am unable to say whether the abdomen of the female is similarly furnished.

Plate III. fig. 21, body of ♂ individual, seen from above.



## Fam. BORBORIDAE.

## BORBORUS Meigen.

(1) *Borborus bilineatus*, sp. nov.

♂ ♀. Long. corp. 2 mm. ; al. 2 mm. Front dark olive-brown with a light central stripe, face yellowish-grey, proboscis and antennae black, arista bare. Thorax dark olive-brown, with two somewhat paler stripes, pleurae and scutellum concolorous, halteres light yellow. Abdomen blackish, the second segment in the male about twice as long as the third. Legs blackish-brown, the fore femora short and rather stout, covered with greenish-grey tomentum, intermediate and hind legs, especially the tarsi, rather long and slender, hind metatarsus about as long as but much thicker than the succeeding joint. Wings hyaline, veins yellowish-brown; middle transverse vein near the base of the discal cell, last two sections of the fourth vein equal, fifth vein just projecting beyond the posterior transverse vein.

HAB. Hawaii, Kona, one male and one female, 4000 ft., July 1892.

## LIMOSINA Macquart.

(1) *Limosina venalicia* Osten-Sacken.

*Borborus venalicius* O.-Sack., Cat. Dipt. N. Amer. 2nd ed. p. 263 (1878).

*Borborus venalicus* [sic] Williston, Tr. Ent. Soc. Lond. 1896, p. 434, pl. XIV. f. 163.

♂ ♀. Long. corp.  $2\frac{1}{2}$  mm. ; al.  $2\frac{1}{2}$  mm. Front reddish-yellow to reddish-brown, a central line, some small spots marking the insertion of the fronto-orbital bristles and two spots on the occiput immediately behind the ocelli silvery-grey; face yellowish-brown, shining; proboscis and palpi yellowish; antennae reddish-brown, third joint darker at the tip, which is obtusely pointed and dusted with whitish tomentum, arista distinctly pubescent. Thorax dark brown, a median line and the insertions of the macrochaetae whitish-cinereous, the markings at the insertion of the dorso-central bristles sometimes continued forward to the anterior margin of the thorax as a more or less interrupted whitish line, humeri also spotted with whitish-cinereous; pleurae more reddish, variegated with whitish-cinereous; metanotum reddish-brown, more yellowish at the sides; scutellum reddish or dark brown, with two triangular spots at the base, a diamond-shaped spot between them and two small round spots marking the insertions of the apical bristles, light cinereous; halteres yellowish. Abdomen blackish-brown, all the segments edged behind with whitish-cinereous. Legs yellow, all the tibiae with two brown rings, last two joints of all the tarsi and the bases of the hind metatarsus and succeeding joint fuscous. Wings yellowish-hyaline, veins yellow, but darkened at the

base of the costa, the tips of the first, second and third longitudinal veins, the origins of the second and third veins, and on the first vein opposite the origin of the third; second and third sections of the costa sub-equal, last section of the second vein twice as long as the first and second sections of the third which are equal; last section of the third vein distinctly curved upwards.

HAB. Hawaii.—Lanai.—Maui.—Oahu.

This remarkably coloured species is said to be a native of Africa, but is also recorded from Cuba, St Vincent, and Brazil. It is represented in the collection before me by thirty-seven specimens, including both sexes, of which twenty-nine are from Mauna Loa, Hawaii, obtained at a height of 3500 ft. in June 1892. The remaining eight examples are from Kona, Hawaii (4000 ft., September 1892); Kilauea, Hawaii, December 1896; Iao Valley, West Maui Mts., March 1894; Lanai, 2000 ft., February 1894; and Kawailoa Gulch, Oahu, April 1893. Osten-Sacken and Williston both place this species in the genus *Borborus*. On account of the extreme tenuity of the last section of the third vein (rendering it almost invisible), the length of the arista and nature of the face, it seems to me to be a true *Limosina*.

(2) *Limosina aequalis*, sp. nov.

♂ ♀. Long. corp.  $2\frac{1}{4}$  mm.; al. 2 mm. Front deep black, with the orbits and a central stripe somewhat lighter, face black, rather shining, with a double groove down the centre, proboscis, palpi and antennae entirely black, the latter porrect, with the third joint large, hairy and hemispherical, arista pubescent. Thorax and scutellum shining black, pleurae dull black. Abdomen black. Legs black, bases of the femora and the tarsi a little lighter. Wings greyish, the three sections of the costa equal in length, the first section with a few longer bristles, first two sections of the third vein equal, together shorter than the last section of the second vein, last section of the third vein straight, terminating at the tip of the wing.

HAB. Oahu, Kawailoa Gulch, one male and one female, April 1893.

Closely allied to *L. pumila*, Williston, from the island of St Vincent, but differs in the entirely black front and face.

NOTE:—Half-a-dozen specimens of *Acalyptrate Muscidae*, gummed on card and in bad condition, have been left undetermined.

Fam. PHORIDAE.

PHORA Latreille.

(1) *Phora*, sp.

A single specimen belonging to this genus, but without head, is in the present collection, from Kona, Hawaii, taken at a height of 2000 ft. in September 1892.

## Fam. HIPPOBOSCIDAE.

This species is represented in the collection by three distinct species, but owing to the want of material for comparison I have been unable to come to any conclusion regarding their identity. The largest (? an *Ornithomyia*) measures from 6 to 8 mm. in length, and seven examples were taken from specimens of the Short-eared Owl in Kona, Hawaii, in June 1892. An eighth specimen was obtained at Lanai, at a height of 2000 ft., in February 1894.

The second species is somewhat smaller, with the thorax tawny, and was captured in the mountains of Molokai at a height of over 3000 ft., on the 12th May 1893. Unfortunately the specimen is headless.

The third species only measures from 2 to 2½ mm. in length. One was obtained in Kona, Hawaii (3000 ft.) in June 1892 on a Short-eared Owl, two in the same region (1500 ft.) in September 1892 on a specimen of *Vestiaria coccinea*, and a fourth was found on *Himatione stejnegeri*, but the locality is not indicated.

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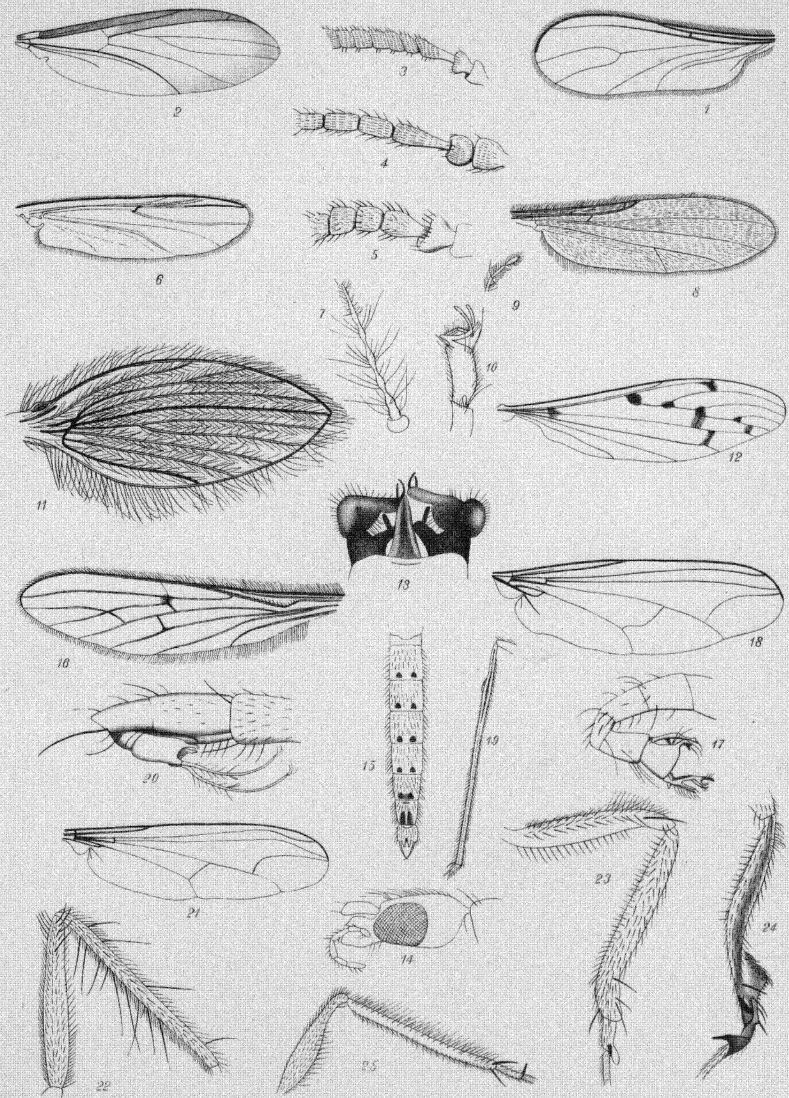
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DESCRIPTION OF PLATE I. (VOL. III.)

DIPTERA.

- Fig. 1. *Sciara molokaiensis*, sp. n., wing.  
 Fig. 2. *Platyura fuscocostata*, sp. n., wing.  
 Fig. 3. " " base of ♀ antenna.  
 Fig. 4. " *hawaiiensis*, sp. n., base of ♂ antenna.  
 Fig. 5. " *insularis*, sp. n., base of ♀ antenna.  
 Fig. 6. *Chironomus hawaiiensis*, sp. n., wing.  
 Fig. 7. " " antenna of ♀.  
 Fig. 8. *Ceratopogon* sp., wing.  
 Fig. 9. " " apex of ♂ antenna.  
 Fig. 10. " " apex of fore tarsus of ♂.  
 Fig. 11. *Psychoda inornata*, sp. n., wing.  
 Fig. 12. *Limnobia perkinsi*, sp. n., wing.  
 Fig. 13. *Dicranomyia apicalis*, sp. n., ♂ genitalia seen from below.  
 Fig. 14. *Styringomyia didyma*, sp. n., lateral view of head.  
 Fig. 15. " " dorsal view of abdomen.  
 Fig. 16. " " wing.  
 Fig. 17. *Gnamptopsilopus patellifer* Thomson, lateral view of ♂ genitalia.  
 Fig. 18. " " wing.  
 Fig. 19. " " hind tibia of ♂ seen from without.  
 Fig. 20. " *pallidicornis*, sp. n., lateral view of ♂ genitalia.  
 Fig. 21. " " wing.  
 Fig. 22. *Campsicnemus fimbriatus*, sp. n., intermediate femur and tibia of ♂.  
 Figs. 23 & 24. " *distortipes*, sp. n., intermediate femur, tibia and metatarsus of ♂, showing outer and hind surfaces.  
 Fig. 25. *Campsicnemus calcaratus*, sp. n., intermediate femur, tibia and metatarsus of ♂.



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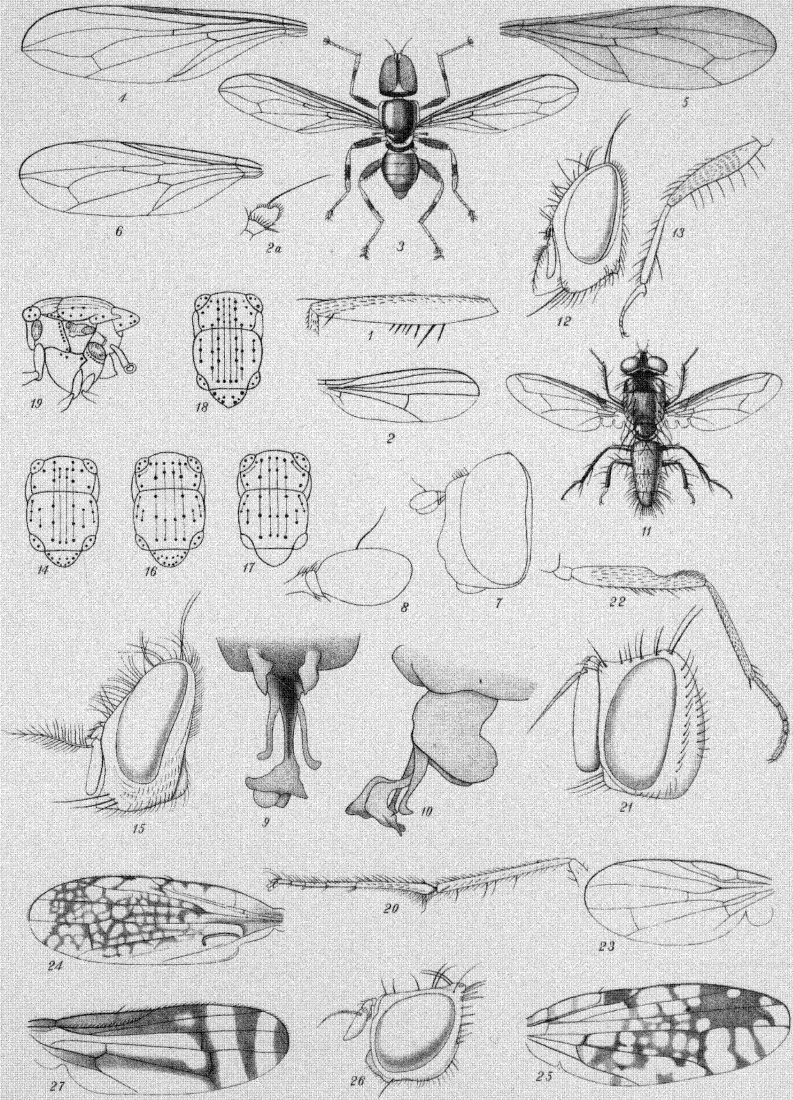
Grimshaw Diptera.



DESCRIPTION OF PLATE II. (VOL. III.)

DIPTERA.

- Fig. 1. *Chrysotus spiniger*, sp. n., intermediate femur of ♂.  
 Fig. 2. " " wing.  
 Fig. 2a. " " antenna.  
 Fig. 3. *Pipunculus molokaiensis*, sp. n., ♂.  
 Fig. 4. " " wing.  
 Fig. 5. " *nigrotarsatus*, sp. n., wing.  
 Fig. 6. " *rotundipennis*, sp. n., wing.  
 Fig. 7. *Xanthogramma grandicornis* Mcq., ♂, lateral view of head.  
 Fig. 8. " " antenna.  
 Fig. 9. " " ♂ genitalia seen from below.  
 Fig. 10. " " " lateral view.  
 Fig. 11. *Dyscritomyia limbipennis* Thoms., ♂.  
 Fig. 12. " " ♂, lateral view of head.  
 Fig. 13. " " fore leg of ♂.  
 Fig. 14. " " chaetotaxy of thorax.  
 Fig. 15. *Prostethochaeta robusta*, sp. n., ♂, lateral view of head.  
 Fig. 16. " " chaetotaxy of thorax.  
 Fig. 17. " *lucilioides*, sp. n., " "  
 Figs. 18 & 19. *Sarcophaga pallinervis* Thoms., " "  
 Fig. 20. *Coenosia latimana*, sp. n., fore tibia and tarsus of ♂.  
 Fig. 21. *Acritochoeta pulvinata*, sp. n., ♂, lateral view of head.  
 Fig. 22. " " fore leg of ♂.  
 Fig. 23. " " wing.  
 Fig. 24. *Tephritis limpidapex*, sp. n., wing.  
 Fig. 25. " *cratericola*, sp. n., wing.  
 Fig. 26. *Phaeogramma vittipennis*, sp. n., lateral view of head.  
 Fig. 27. " " wing.



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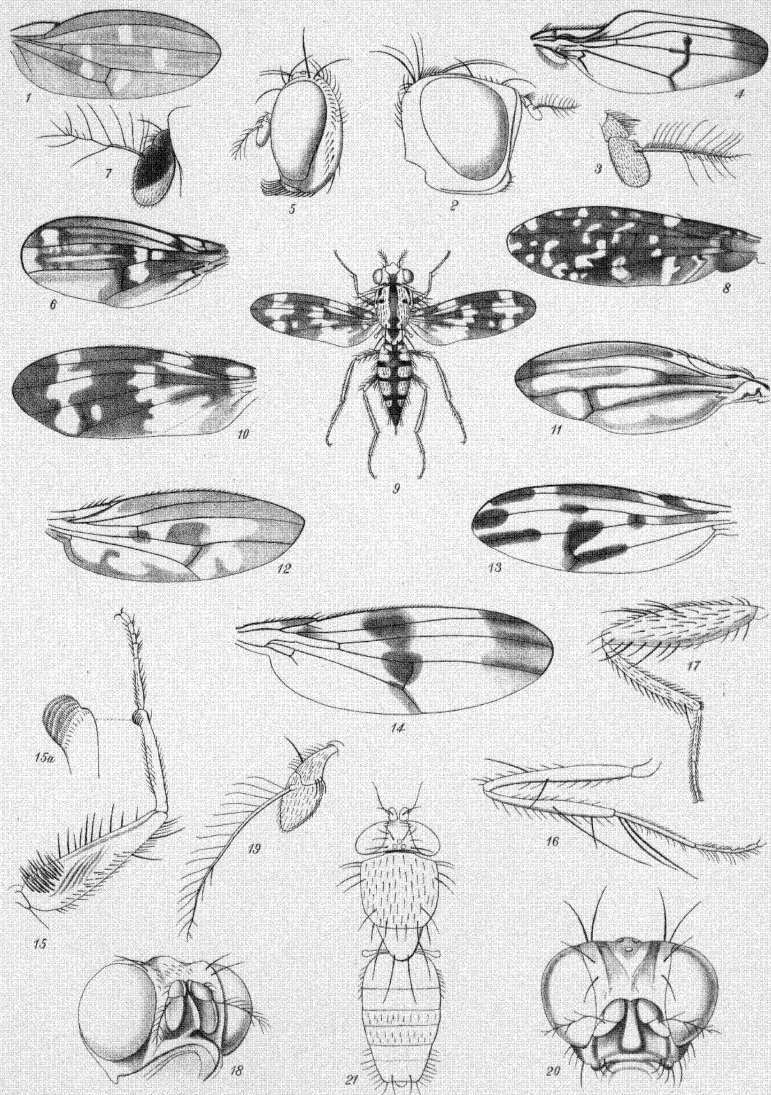


DESCRIPTION OF PLATE III. (VOL. III.)

DIPTERA.

- Fig. 1. *Scatella hawaiiensis*, sp. n., wing.  
 Fig. 2. *Idiomyia perkinsi*, sp. n., ♂, lateral view of head.  
 Fig. 3. " " antenna of ♂.  
 Fig. 4. " " wing of ♂.  
 Fig. 5. *Hypomyia varipennis*, sp. n., ♂, lateral view of head.  
 Fig. 6. " " wing.  
 Fig. 7. *Drosophila picticornis*, sp. n., antenna.  
 Fig. 8. " " wing.  
 Fig. 9. " *variegata*, sp. n., ♀.  
 Fig. 10. " " wing.  
 Fig. 11. " *undulata*, sp. n., wing.  
 Fig. 12. " *perkinsi*, "  
 Fig. 13. " *conspicua*, "  
 Fig. 14. " *hawaiiensis*, "  
 Figs. 15 & 15a. " *anomalipes*, sp. n., fore leg of ♂ and end of tibia more highly magnified.  
 Fig. 16. " *setiger*, sp. n., fore leg of ♂.  
 Fig. 17. " *crassifemur*, sp. n., fore leg of ♂.  
 Fig. 18. " *nasalis*, sp. n., head of ♂.  
 Fig. 19. " *longiseta*, sp. n., antenna.  
 Fig. 20. " *carinata*, sp. n., head of ♀.  
 Fig. 21. *Ophthalmomyia lacteipennis* Loew, dorsal view of ♂.





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